Instruction manual

STROMME

Marine Compressors

☐ SMC 18-A
☐ SMC 22-A
☐ SMC 26-A
☐ SMC 36-A
☐ SMC 44-A

air cooled, 440V/60Hz

Serial no.: ____________________

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Est. 1883

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All particulars in this manual are specified to our best knowledge, but without guarantee.

We reserve the right to make changes to information on hardware and firmware documentation at any time without previous announcement.

We are thankful for any criticism and suggestions.

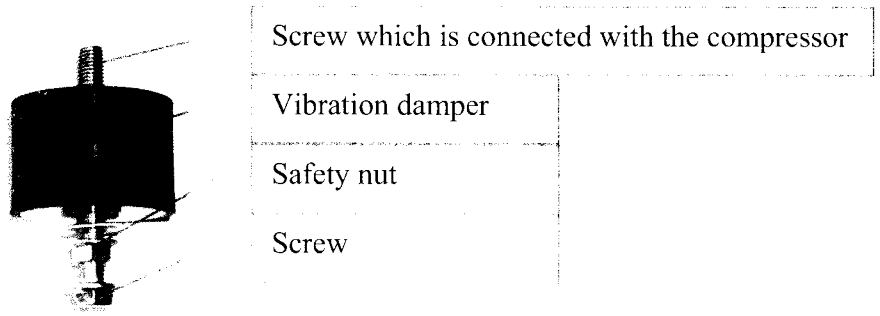
Installation of SMC, Stromme Marine Compressors

The Instruction Manual, Part 2, Chapter 4, Installation, must be adhered to.

Special consideration shall be done to the following items:

Foundation

See Chapter 4.1 Setting up



Cooling air inlet/outlet

See Chapter 4.2, 4.3 Ventilation

Water cooling(optional)

See Chapter 4.4 Water cooling
Piping:
Seawater-cooled compressor, is equipped with titanium steel plate heat exchangers.
The water supply piping(customer supply), must be either of material stainless steel, or CuNi.
Galvanized piping is not accepted.

Compressed air outlet

See Chapter 4.6 Connection to the compressed air net
Flexible hose(BSP) or pipe compensator(DN) to be used.

Power supply

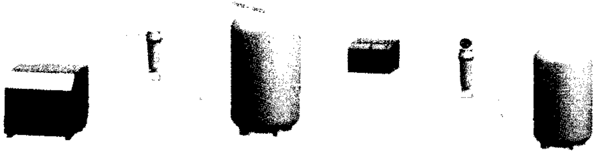
See Chapter 4.7 Electrical connections, Chapter 9.4 Electrical data and nameplate

Air receiver

A compressor shall normally operate together with an air receiver. The size of the air receiver depends on the capacity of the compressor, pressure, and the air demand.
Recommended MINIMUM sizes are:

Compressor type	SMC 7	SMC 9	SMC 14	SMC 18-22	SMC 26	SMC 36	! SMC 44	SMC 54-66	SMC 90-108	SMC 132-158	SMC 192	SMC 240
Air conn.	¾	¾	¾	1	1	1 ½	1 ½	1 ½	2 ½	2 ½	DN 80	DN 80
Min.air. rec.ltr.	150	200	250	400	500	750	1000	1500	2000	3000	4000	5000

V



1 Warranty

2 Instruction for use

3 Spare part lists & drawings

4 Electrical diagrams

5 Test certificates

EMS Ship Supply – Standard Warranty Terms

SMC compressors

Screw compressors

- 12 months on the complete unit after start up, but maximum 15 months after landing.
- 24 months on the air end after start up, but maximum 27 months after delivery of maximum 8.000 working hours what occours first.

Dryers, air treatment equipment and accessories

- 12 months after start up, but maximum 15 months after landing

Spare parts

- 6 months after delivery

Under exclusion of wearing and service parts.

Warranty can only be granted if

1. Original spare parts as well as original wearing and service parts are used only.
2. Service is done by Stromme personal or by authorized/trained service technicians.
3. Service- and maintenance intervals as recommended by Stromme in the manual are respected.

Table of contents

1. Safety instructions 6
1.1 . Symbols in this manual 6
1.2 . Proper usage 7
1.3 . Qualified personnel 7
1.4 . General safety instructions 8
2. Functional description 10
3. Storage and transport 14
4. Installation 16
4.1 . Setting up 16
4.2 . Ventilation 16
4.3 . Forced ventilation (optional) 17
4.4 . Water cooling (optional) 18
4.5 Heat recovery for heating water / potable water (optional) 18
4.6 . Connection to the compressed air net 19
4.7 . Electrical connections 19
5. Displays and operating elements 20
5.1 . Plant main switch 20
5.2 . Emergency OFF 20
5.3 . Air Control 1 21
5.3.1 Basic display 22
5.3.2 ON/OFF switching of compressed air generation 23
5.3.3 Viewing additional operating data 23
5.3.4 Menu system 24
5.3.4.1 Unit parameterisation 24
5.3.4.2 Basic parameterisation 25
5.3.4.3 Code 2: Operating mode 26
5.3.4.4 Code 3: Automatic restart after power failure 27
5.3.4.5 Code 8: Local control, remote control, LLC-OK 27
5.3.4.6 Code 11: Start and stop pressure 27
5.3.4.7 Code 18: Lead leg control (LLC) .. 28
5.3.4.8 Code 21: Maintenance acknowledgement 28
5.3.4.9 Code 51: Off-load, off, star/delta time 29
5.3.4.10Code 65: Condensate valve 29
5.3.4.11Code 90: Unit for pressure indication 30
5.3.4.12Code 95: Unit for temperature indication 30
5.3.4.13Code 999: Software version 30
5.3.5 Warnings / maintenance work 31
5.3.6 Malfunctions 32
5.4 . Air Control 3 (option) 33
5.4.1 Basic display 34
5.4.2 ON/OFF switching of compressed air generation 34
5.4.3 Function key reservation in the basic display 35
5.4.3.1 Capacity utilization 36
5.4.3.2 Service 36
5.4.3.3 LLC status 37
5.4.3.4 Compressor pass 37
5.4.3.5 Diagram net pressure 38
5.4.3.6 Diagram final compression temperature 38
5.4.3.7 Diagram compressed air amount / day profile 38
5.4.3.8 Diagram compressed air amounts / week profile 38
5.4.3.9 Modify diagram settings 39
5.4.4 Menu system 40
5.4.4.1 Sub-menu Limit values 41
5.4.4.2 Sub-menuOperating parameters... 42
5.4.4.3 Sub-menuService intervals 43
5.4.4.4 Sub-menu Timer 44
5.4.4.5 Sub-menu Fault log 46
5.4.4.6 Sub-menuDisplay parameters 46
5.4.4.7 Sub-menuConfiguration 47
5.4.4.8 Sub-menuLead lag control (LLC) .. 48
5.4.4.9 Sub-menu Accessories 48
5.4.4.10Sub-menu Diagnosis 49
5.4.5 Warnings / maintenance 50
5.4.6 Malfunctions 51
6. Correcting malfunctions 52
7. Initial commissioning 54
7.1 . Preparatory activities 54
7.2 . Check cooling fluidlevel 54
7.3 . Start-up lubrication of the compressor stage 54
7.4 . Rotational direction control 55
7.5 . Basic settings 56
7.5.1 Controlling the unitby means of Air Control 1 56
7.5.2 Controlling the unitby means of Air Control 3 (option) 56
7.6 Switch on compressed air generation 57
7.7 . Concluding activities 57
8. Service 58
8.1 OverviewMaintenance intervals 58
8.2 . Preparatory activities 58
8.3 . Check cooling fluid level / refill cooling fluid .. 59
8.4 . Check for leakage 60
8.5 . Check the compressor temperature 60
8.6 . Check the cooler for fouling 60
8.7 . Check for condensate 61
8.8 . Cooling fluid replacement / replacing cooling fluid filter 62
8.9 . Recommended coolingfluid 63
8.10 Replacing cooling fluid separator 64
8.11 Replacing air filter 65
8.12 Check safety valve 65
8.13 Check drive 66
8.14 Relubrication of the electric motor 66
8.15 Recommended lubricant for motors 66
8.16 Concluding activities 67
9. Technical Data 68
9.1 Dimensions for connections 68
9.2 Data air-cooled compressors 69
9.3 Data water-cooled compressors 69
9.4 Electrical data 69

1. Safety instructions

Safety instructions

You are reading this manual in order to learn about the screw compressor. It contains information that is required for safe, malfunction-free operation of the system. Please keep in mind that damage incurred due to improper usage may not fall under the conditions of guarantee!

For this reason, please keep this manual where all users can have free access to it at any time.

The system was developed, manufactured, tested, and documented in state-of-the-art technology and considering all the current safety standards.
In normal circumstances, no danger for personnel or property can result from the system if you comply with the stipulations of the service manual and if the transport, assembly, service and the described handling is carried out according to the regulations.
Nevertheless certain risks remain!

1.1 Symbols in this manual

DANGER

This symbol is employed whenever personal damage can be incurred by carelessness, or by ignoring the instructions.

NOTICE

This symbol is employed when damage to property can occur through carelessness, or by ignoring the instructions.

Italic text is employed when we would like to draw your attention to particular information.

Text in a frame signifies the description of an activity to be carried out by the user.

1.2 Proper usage

The system is exclusively designed for

- **the generation of compressed air** and
- for operation **in an environment without explosion risk**.

Any other utilization must be regarded as not in compliance with the design purpose!

The manufacturer/vendor is fundamentally not liable for damage incurred if the system is not used according to its design purpose!

The generated compressed air may not be used for human respiration. In case the compressed air is used for pharmaceutical or sanitary purposes, it must undergo further treatment. The same is true when the compressed air is used in production plants and comes into direct contact with foodstuffs.

1.3 Qualified personnel

This manual is directed to "qualified personnel", who are commissioned with the transport, installation, operation or service of the system. These individuals must read the chapter relevant to their duties.

“Qualified personnel” are individuals who:

- upon the basis of their professional training, knowledge and experience as well as their understanding of the relevant norms can assess the work to be carried out with regard to all possible dangers, or
- based on many years of activity in a comparable field, have the same state of knowledge as someone with professional training.

Activities that are not described in this manual may only be carried out by our customer service department or by authorized technical personnel.

Unqualified actions or disregarding the warnings in this manual or those affixed to the product can lead to serious personal injury or damage to material!

1. Safety instruction

1.4 General safety instructions

DANGER

Loss or decrease of compressor safety !

Retrofitting or modifications on the system can reduce its level of safety! The results could be serious personal, material or environmental damage. Possible retrofitting or modifications on the system with equipment components from third party manufacturers must therefore first be cleared by us.

DANGER

Loss of contact protection!

The side panelings of the system are part of the contact protection system to protect personnel from fan impellers that start up automatically, moving machine parts, hot surfaces and dangerous voltages! Furthermore, they are required for sound insulation and cooling air conduction. Therefore they must not be removed when the unit is in operation.

For initial commissioning, it is required to remove the side paneling of the system. Furthermore, in the process of the initial commissioning of the plant, the mains switch must be turned on.

The initial commissioning, therefore, may only be carried out by qualified technical personnel!

DANGER

Injuries caused by fan impellers that start automatically, moving machine parts, hot surfaces or escaping cooling fluid mist!

Installation, service or repair work on the components of the system must, if not otherwise described, be categorically carried out only on a switched-off, sufficiently cooled-off and pressure-free system! The system must be secured against an illicit or accidental switching-on. The shut-off device for the compressed air net must be closed.

If measuring or testing work is required on the electrical components while the system is in operation, they must be carried out by electricians observing all the relevant safety regulations.

DANGER

Damage to the sense organs!

Compressed air streams may not be directed towards persons. When applying compressed air, dust particles can be raised by the air stream. Therefore, when working with compressed air, protect your eyes with safety glasses.

NOTICE

Loss or decrease of compressor dependability!

Only original spare parts and lubrications may be employed!

We recommend that a set of service parts subject to wear be kept on stock, in order to guarantee high compressor availability. Our customer service would be glad to help you with your selection.

NOTICE

Damage to the system may result in environmental damage!

Before initial commissioning, the system must have been correctly installed according to Chapter 6!

Compressor greater than 100 kW must be taken into operation by qualified personnel.

Dispose of all used or defective materials in a proper way!

This is especially true for components/materials containing cooling liquid. Please note that the accumulated condensation containing cooling liquid may not enter the sewage system!

We offer an appropriate cooling fluid/water separator for condensation processing.

Compressed air receivers require regular technical inspections!

Please notify the commissioning of the system at the technical inspection authority responsible for you. They will inspect the system and provide a receiver test book.

Document all the activities carried out (e.g. in some table format).

Carry out the activities in all of the following chapters in the order given.

2. Functional description

2.1 Drive

The electric motor drives the compression stage via a V-belt.

2.2 Air path

Fresh air supplied by the integrated cooling air ventilator is filtered through the air filter(s). The air is then directed via the suction regulator into the compressor stage, where it is compressed to the final compression pressure together with injected cooling fluid.

In the cooling fluid reservoir, the compressed air is separated 98 % from the cooling fluid and the downstream cooling fluid separator removes the remaining cooling fluid from the compressed air. The air then flows via the minimum pressure non-return valve into the compressed air aftercooler and is cooled down to 10 - 15 °C above the ambient temperature before it leaves the compressor through the compressed air connection.

The suction regulator opens shortly after the compressor has started up for generating compressed air. It closes when the compressor changes over to off-load operation and/or comes to a standstill and unloads the system via the relief valve.

2.3 Cooling fluid circulation

The cooling fluid is sprayed into the air end and has the following functions:

- heat removal of the temperature increase caused by the compression process
- sealing lubrication of the rotors to each other and to the housing with a cooling fluid film
- bearing lubrication
- noise dampening

The cooling fluid leaves the air end together with the compressed air as a hot cooling fluid return air mixture.

The cooling fluid is separated from the compressed air into the seperator tank by the cooling fluid separator and when separated, it flows to the cooling fluid heat exchanger. The cooling fluid temperature regulator mixes the cooled down cooling fluid with the cooling fluid heat exchanger-bypass hot cooling fluid as defined by the setpoint temperature. Finally, the cooling fluid filter cleans the cooling fluid, before it is again injected in the air end.

If desired by the customer, an additional heater can be installed in the seperator tank either originally or subsequent to purchase. It prevents condensation damage in the case of cold or damp compressor environments, for example.

2.4 Cooling

The compressed air after-cooler of the cooling fluid heat exchanger is cooled either by

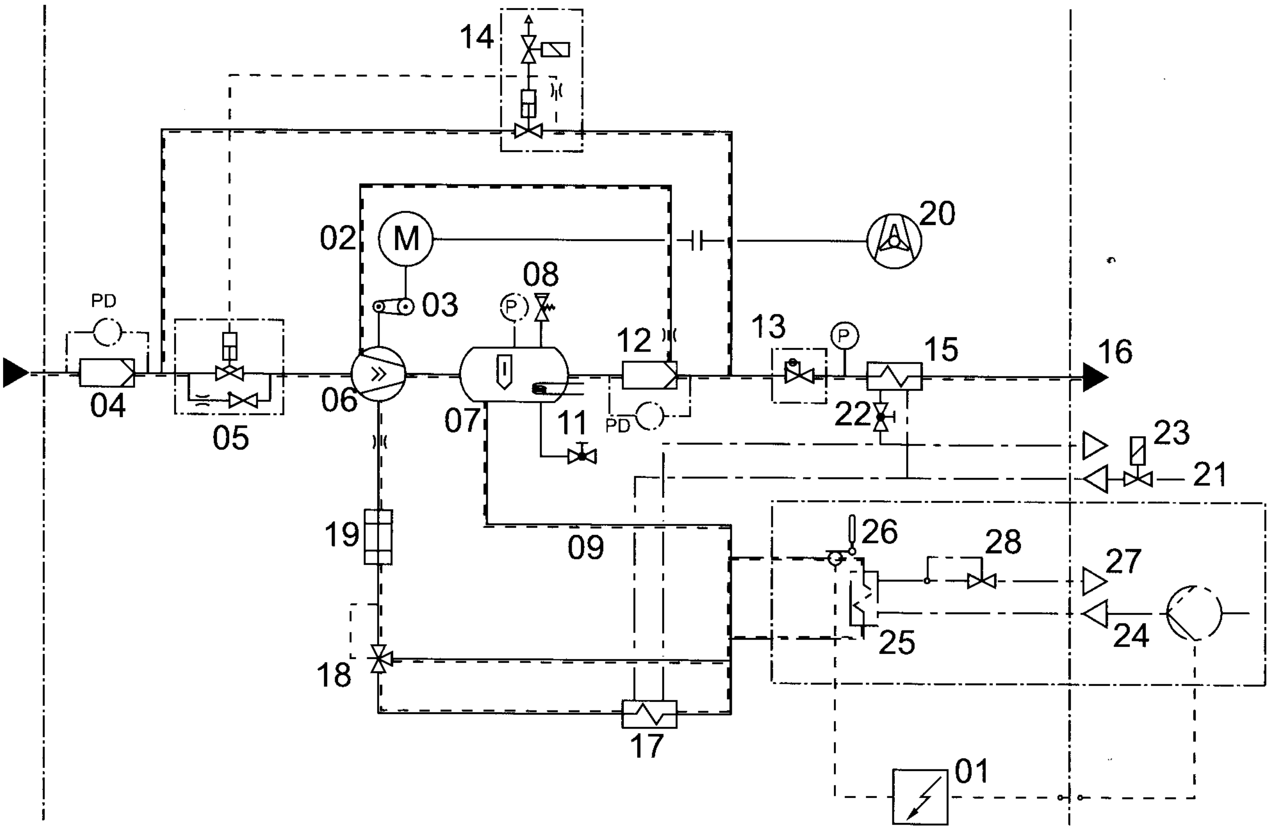
- a built-in cooling air ventilator or
- water cooling.

The electric motor is always cooled by its own ventilator fan.

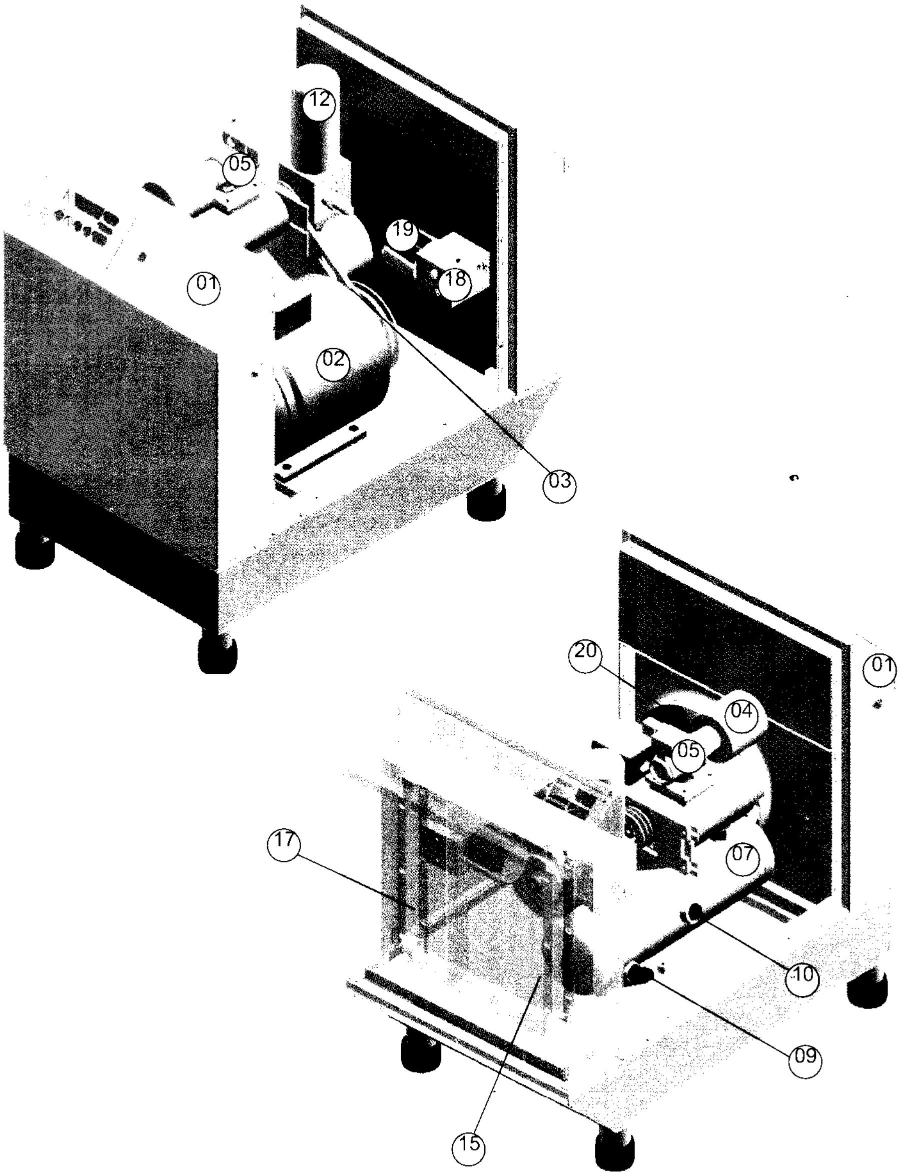
In the case of water-cooled compressors, a fresh air ventilator additionally ensures sufficient fresh intake air for the removal of radiated heat.

2. Functional description

2.5 Flow diagram



2.6 Components



2.7 Legend

01 Switching cabinet
02 Electric motor
03 V-belt
04 Air filter
05 Suction regulator
06 Compressor level
07 Cooling fluid reservoir
08 Safety valve
09 Drain
10 Inlet fitting
11 Additional heater (optional)
12 Cooling fluid separator
13 Minimum pressure non-return valve
14 Relief valve
15 Compressed air after-cooler
16 Compressed air connection
17 Cooling fluid cooler
18 Cooling fluid temperature regulator
19 Cooling fluid filter
20 Cooling air ventilator
21 Cooling water inlet
22 Throttle valve compressed air after-cooler
23 Solenoid valve
24 HCR water inlet
25 HCR heat exchanger
26 HCR thermostat
27 HCR water outlet
28 HCR thermostat valve

3. Storage and transport

For measurements and weights, see Chapter 9.

Please store the system only in a dry, frost-free room.

DANGER

Observe the local regulations and other requirements pertaining to the professional use of tools, lifting and transport equipment, as well as the valid standards and regulations for accident prevention.

Always transport the system in its normal operating orientation in a pressure-free state. Tilting or laying the system down is not allowed.

Use a fork-lift truck for transport. For short transportation distances, a palette lifting trolley may be used.

4. Installation

4.1 Setting up

Install the system in locations with the following environmental conditions:

max. height above sea level:	1000 m
ambient temperature:	+5 to +50 °C
ambient conditions:	cool, dry, dust free
ambient temperature under +5 °C upon request	

Space requirements and system weights are dependent on the compressor type purchased. Measurements and weights: see Chapter 9.

Always maintain the minimal clearances to the walls or other objects, so that system service functions can be carried out without hindrance.

We recommend setting up the compressors in a separate compressor room.

DANGER

Open flame or fire as well as welding work in the vicinity of the system are forbidden!

4.2 Ventilation

The air entering the intake opening is used for the compression as well as for compressor cooling.

The ventilation must fulfill at least the following criteria:

- Supply required cooling air amounts as defined in Chapterd 9.2 and 9.3
- Remove exhaust air as defined in Chapter 9 in order to prevent a heating up of the compressor site
- The cooling air must be cool, dry and dust-free

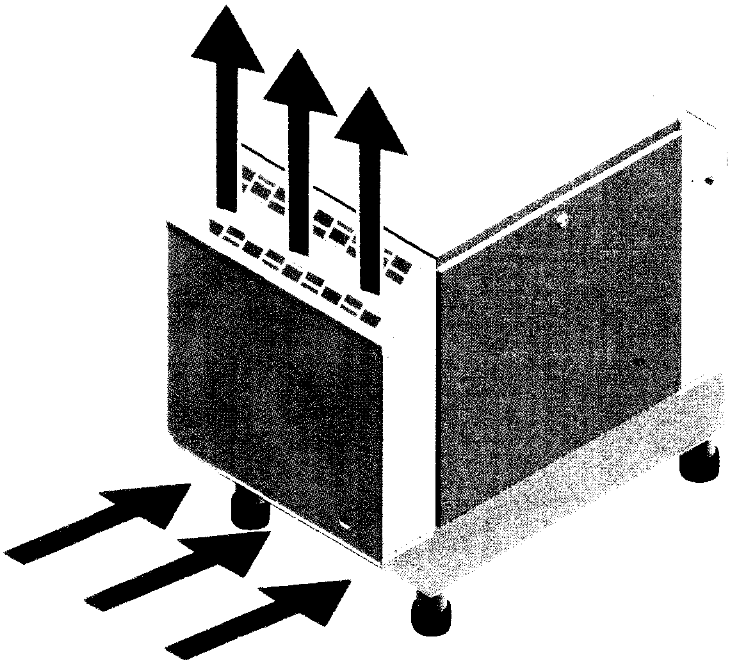
Make certain that the supply air contains no dangerous explosive gas mixtures, steam, dust or aggressive pollutants.

Make certain that the place of installation is dust-free as well as within the prescribed operating temperature limits and as cool as possible. If necessary, ensure the professional installation of forced air ventilation, filtering, room cooling or heating.

NOTICE

Make certain that the place of installation is professionally ventilated.

Make certain that no circulating air short-circuit (the intake of the exhausted warm air) can occur.



Cooling air volume flows: see Chapter 9.

4.3 Forced ventilation (optional)

Forced ventilation must be dimensioned in such a way that the required fresh and exhaust air, considering the available residual pressure of the compressor ventilator, can be supplied and expelled.

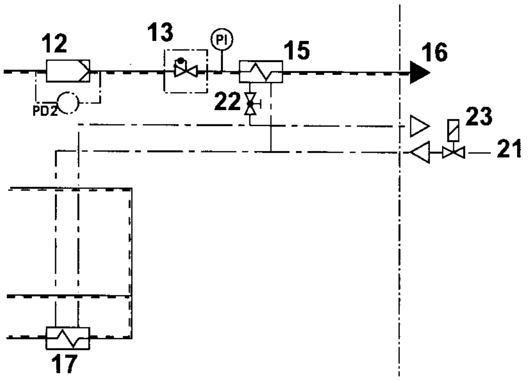
Nominal diameters of the channel connections and information on the residual pressure : see Chapter 9.

If ventilation ducts are to be connected to the system, then the required supporting supplementary ventilators should be included when planning the ducts.

The exhaust air can also be utilized for the purpose of heat recovery.

4.4 Water cooling (optional)

For water-cooled plants, the temperature of the compressed air after-cooler of the cooling fluid heat exchanger is lowered with external cooling water.



For cooling water quantities, temperatures, pressures and connections, see chapter 9.

The cooling water must fulfill the following criteria:

- Inlet temperature less than + 35 °C
- Pre-pressure 4 bar to10 bar
- Pre-filtration with a mesh width of at least 0.1 mm

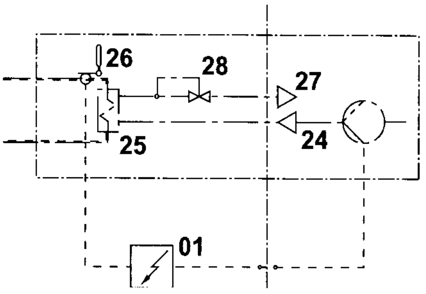
A solenoid valve (optional) should be installed before the cooling water inlet.

The cooling water current through the compressed air after-cooler should be set with the throttle valve belonging to it in such a way that the compressed air outlet temperature is 15 °C higher than the output air.

4.5 Heat recovery for heating water / potable water (optional)

Compressors can be supplied with the optional heat recovery system

- for heating water **or**
- for potable water (safety heat exchanger with blocking medium)



Water amounts, temperatures and pressures: see Chapter 9.

The heat recovery is to be connected appropriately (see drawing in Chapter 9) as defined.

The water for heat recovery must fulfill the following criteria:

- pressure of up to 10 bar
- pre-filtering with a mesh width of at least 0.1 mm

4.6 Connection to the compressed air net

We assume the existence of a professionally designed, installed and serviced compressed air net.

Install an additional shut-off valve at the input of the compressed air net.

Connect the system only with a flexible compressed air hose to the compressed air net. Length of the hose employed: max.1.5 m.

DANGER

Unpredictable movements of the compressed air hose!

During load switching in the compressed air net, the hose can move suddenly and with great force. Therefore the hose must be adequately anchored or fixed.

4.7 Electrical connections

The system is designed for connections to a three-phase supply network (clockwise phase sequence). The mains supply contains professionally dimensioned fuse protection devices (for human and plant system protection), an appropriate mains switch (switching on/off of the supply current) is required.

All the relevant data for the connections can be found

- in Chapter 9
- on the nameplate of the system.

DANGER

Electrical voltage!

Only trained electricians may connect the system to the electrical supply network.

Before making the connections according to the compressor nameplate, determine if the available supply network is adequate. Voltage deviations greater than 10 % are not allowed.

Mount the mains switch in the neighborhood of the plant. It must be easily accessible at all times.

Lay the supply cables professionally. Make certain that the installation cannot endanger individuals or property. Take into account the necessary cable diameters, strain relief, and max. allowed cable lengths.

Connect the system according to the circuit diagram. The circuit diagram is provided in the control cabinet of the system.

NOTICE

Damage to the system is possible!

Before switching on the generation of compressed air, initial commissioning according to Chapter 6 must be correctly carried out!

Test the correct functioning of all safety facilities (protective grounding, protective switch etc.).

Carefully lock the control cabinet after the connection work is completed.

5. Displays and operating elements

5.1 Plant main switch

The unit is connected to and disconnected from the power supply by a main switch, which is to be installed externally.

⚠ *DANGER*

The compressor main switch must be switched off for all service or installation work and protected from illicit or accidental switching on (e.g. affix a warning sign to the main switch forbidding its being turned on)!

5.2 Emergency OFF

The system may be stopped with EMERGENCY OFF in the case of a real emergency!

Stop the motor in case of danger: press key.

⚠ *DANGER*

Make sure that the shut-down system is sufficiently protected against recommissioning!

Enable the system only when the cause of danger has been professionally removed and a securely operating state is achieved.

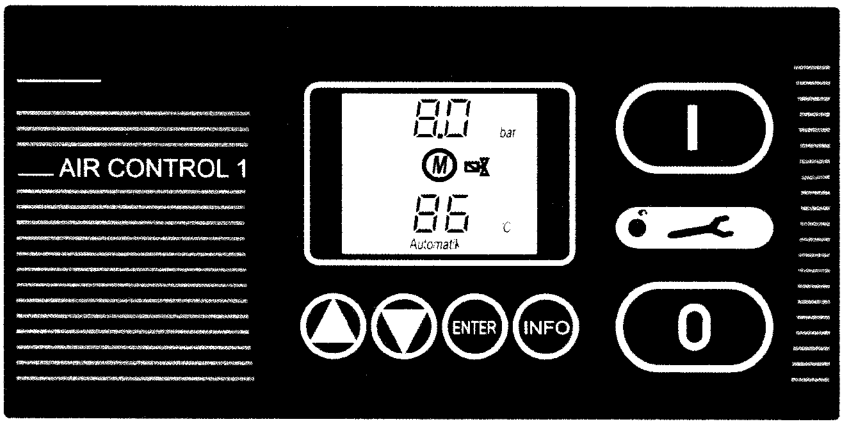
Enable system:

1. Pull the EMERGENCY OFF pushbutton
2. press key (0) to acknowledge the malfunction.
3. press key (I) to switch the system on again.

5.3 Air Control 1

The operating / display desk of Air Control 3

- displays the compressor states / operating data
- switches on and off compressed air generation
- is used for compressor parameterizing.

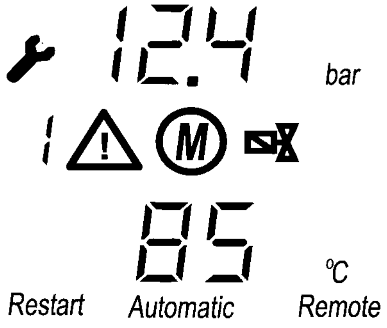


▲▼	Modification of parameter values
Enter	Confirmation of parameter changes
Info	Display additional operating data.
○ I	Switch on compressor. Integrated green LED Blinking: compressor is not running, can at any time be automatically started up. Lighted: Compressor is running.
0	Compressor shut down.
☼	Signals a current warning/malfunction with the integrated red LED.

5. Displays and operating elements

5.3.1 Basic display

After switching on the main switch or during normal operation, Air Control 1 will inform you about the compressor state.



12.4 bar	Current pressure
	Warning present (see Chapter 5.3.5)
Ⓜ	Motor is running
⧗	Compressor compresses air
🔧	Fault is present (see Chapter 5.3.6)
Restart	Automatic restart after power supply is activated
Automatic	Operating mode Automatic or Automatic optional
Remote	- Flashing: Generation of compressed air ON/OFF by remote switch - Continuous: Generation of compressed air controlled by higher-level control
85 °C	Current compressor temperature

Instead of the current compressor temperature you can also have the current cooling fluid temperature displayed: Press key ▲. For viewing further operating data, see Chapter 5.3.3.

5.3.2 ON/OFF switching of compressed air generation

Switching ON: press key (I).

The compressor is ready and can start up automatically at any time.

The compressor starts up only when

- the current line pressure falls below the start pressure and
- the compressor temperature is at least 1 °C.

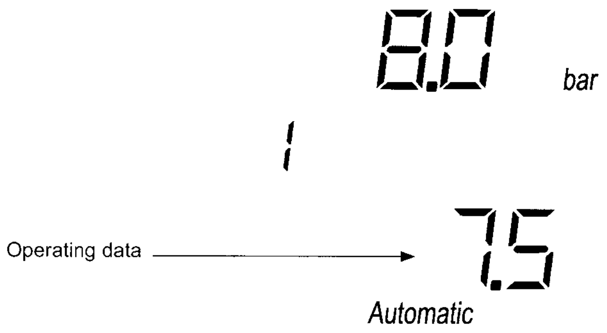
Switching OFF: press key (0).

For the duration of the off time, the compressor switches to the off-load state and afterwards off.

During the switching-off process, the unit first changes over to the “off-load” mode (motor running, but compressor does not compress air; a flashing point appears in the display) for the duration of the “off time” (45 s). Only then is the unit switched off (motor stops).

5.3.3 Viewing additional operating data

Press the **INFO** key repeatedly to view the following operating data in the order below.



1x Start pressure in bar. The compressor starts up as soon as the line pressure falls below this value.
2x Stop pressure in bar. The unit changes over to the off-load mode as soon as the line pressure increases above this value.
3x Safety pressure in bar (= stop pressure + 0.8 bar). When this safety pressure is reached, the compressor shuts down and an error message is output.
4x min. permissible compressor temperature
5x max. permissible compressor temperature
6x Total running hours
7x On-load hours
8x Remaining service life of air filter
9x Remaining service life of cooling fluid and cooling fluid filter
10x Remaining service life of fine separator
11x Remaining service life of motor lubrication
12x Time remaining until compressor must be serviced

NOTICE

Display of faults/warnings is deactivated!

As long as the operating data above are viewed, no fault messages or warning can be output. This screen should therefore be exited as soon as possible.

5.3.4 Menu system

Unit parameterisation	5.3.4.1
Basic parameterisation	5.3.4.2
Available code numbers	5.3.4.3 bis 5.3.4.13

All basic settings of the system can be viewed in the menu system. If the modifications have no influence on operational safety, they may be modified by means of a code entry.

5.3.4.1 Unit parameterisation

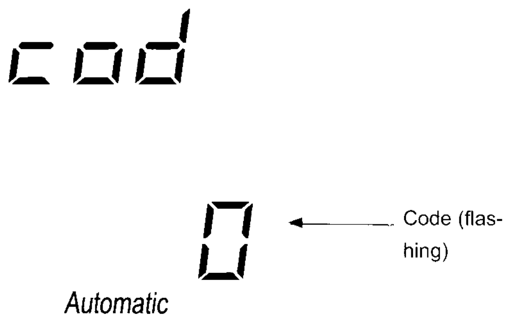
The unit can only be parameterised, when the generation of compressed air is switched off. See Chapter 5.3.2.

Parameters allow the unit to be adjusted to your specific requirements. To this end, Air Control 1 must be switched to the parameterisation mode.

The individual parameters can be selected with a code and then changed. A description of available code numbers can be found in Chapters 5.3.4.3 to 5.3.4.13.

Paremeterisation procedure:

1. Press key ⓪ until the message "cod" appears in the display. Air Control 1 is now at the main level of the parameterisation mode.



2. Now select the required code by means of keys ▲ and ▼.
3. Press **ENTER** to activate the code. Air Control 1 changes to the first sub-level.

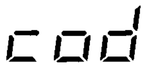
*With some codes, several parameters can be entered one after the other. In these cases, simply press key **ENTER** to select the subsequent parameter.*

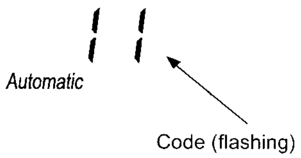
4. Use keys ▲ and ▼ to change the current setting of the selected code according to your requirements.
5. Press key **ENTER** to take over the new settings or press key ⓪ to leave the setting unchanged and return to the next higher level.

5.3.4.2 Basic parameterisation

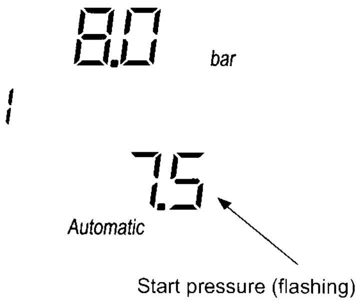
The unit can only be parameterised, when the generation of compressed air is switched off. See Chapter 5.3.2.

The basic parameterisation prepares the unit for operation.



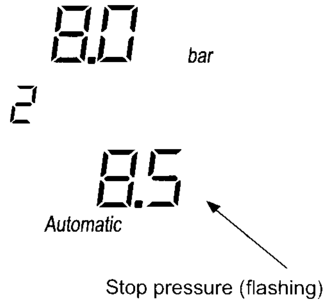


1. Press key ⓪ until the message “cod” appears in the display.
2. Select code 11 by means of keys ▲ and ▼ and press key **ENTER**.
3. Press key **INFO**.



Air Control 1 now shows the start pressure. The compressor compresses air as soon as the line pressure falls below this value. Possible adjustment range: 3.5 to maximum pressure of the unit.

4. Adjust the required start pressure using keys ▲ and ▼ confirm the setting by pressing key **ENTER**.
5. Press key **INFO**.



Air Control 1 shows the stop pressure. The compressor changes over to off-load operation as soon as the line pressure exceeds this value. Possible adjustment range: 3.5 to maximum pressure of the unit.

The stop pressure must be higher than the start pressure!

6. Select the required parameter value using keys ▲ and ▼ and confirm the setting by pressing key **ENTER**.
7. Press key ⓪ to complete the basic parameterisation.

5.3.4.3 Code 2: Operating mode

Determines how the unit is to respond when the start or stop pressure is reached. Both limit values are set during basic parameterisation (see Chapter 5.3.4.2).

0: Automatic.
The symbol "Automatic" appears in the display.
The motor starts up and the compressor compresses air (= on-load operation), as soon as the line pressure falls below the start pressure. The unit changes over to off-load operation (motor running, but the compressor does not compress air), as soon as the line pressure exceeds the stop pressure. As soon as the off-load phase starts, the off time elapses (for the parameterisation, see Code 51 Chapter. 5.3.4.9). The motor stops after the off time.

1: On-/off-load
The symbol "Automatic" is not shown in the display.
In contrast to the automatic operating mode, the motor never stops running. The compressor compresses air as soon as the line pressure falls below the start pressure. The unit changes over to off-load operation (motor is running, but the compressor does not compress air), as soon as the line pressure rises above the stop pressure.

2: Automatic optional
The symbol "Automatic" and an additional dot before the temperature are shown in the display.
Similar to the automatic mode. Here, the user has an influence on how often the motor stops. To this end, the parameters "maximum pressure loss" (adjustment range 0.0 to 9.9 bar) and "max. number of motor starts" (adjustment range 1 to 55 cycles/hour) are queried additionally.

Function "Max. pressure loss":
When the unit changes over from on-load to off-load operation, Air Control 1 saves the current line pressure after 10 and after 40 seconds. If the pressure loss thus established is higher than the "Max. pressure loss", the motor shuts down after the off time has elapsed (parameterisation with code 51, see Chapter 5.3.4.9), otherwise after the "off" time (45 s).

Function "Max. number of motor starts":
The motor is not switched off after the "off" time elapsed, when the number of starting cycles of the compressor exceeds the "Max. number of motor starts".

5.3.4.4 Code 3: Automatic restart after power failure

Determines whether the generation of compressed air is to restart automatically after a mains power failure.

0: **Automatic restart: OFF**
The generation of pressure remains deactivated after a power failure. The fault message "power fail" is output.

1: **Automatic restart: ON**
When this function is activated, the display shows the symbol "restart".
If the generation of pressure was activated before the power failure occured, the unit restarts automatically after the "off" time. In this case, the fault message "power fail" is not output. If the generation of pressure was deactivated before the power failure, it remains deactivated.

5.3.4.5 Code 8: Local control, remote control, LLC-OK

Determines, how the generation of pressure is to be switched on and off.

0: **Local control**
The generation of compressed air can only be switched on or off from the control panel of Air Control 1.

1: **Remote control**
The generation of compressed air can be switched on only by way of a positive edge (24 VDC) at terminal 23 and switched off only by means of a low level (0 V) at terminal 23 or by pressing key ⓪. This functionality is signalled on the display of Air Control 1 by a flashing text "Remote".

2: **LLC-OK**
The input at terminal 23 is used to signal the readiness for operation of an external control. The external control can only be switch between on-load and off-load operation when a high level (24 VDC) is applied (see code 18, value 1, Chapter 5.3.4.7). When a low level is applied, LLC operation is automatically switched off and the internal pressure sensor used.

5.3.4.6 Code 11: Start and stop pressure

Determination of the start and stop pressures; for the procedure, see Chapter 5.3.4.2

5.3.4.7 Code 18: Lead leg control (LLC)

Determines whether the changeover between on-load and off-load operation is to be controlled by the internal pressure senor or by a higher-level control.

0: **Changing over between on-load/off-load operation by internal pressure sensor**

1: **Changing over between on-load/off-load operation by external control (e.g. PLC)**
On-load operation when a high level (24 VDC) is applied to terminal 22. Off-load operation when a low level (0 V) is applied to terminal 22. This functionality is signaled by the text "remote" that appears continuously in the display of Air Control 1.

5.3.4.8 Code 21: Maintenance acknowledgement

Is used for acknowledging a maintenance warning currently present: For the meaning of maintainence numbers and acknowledgement of warnings, see Chapter 5.3.5.

NOTICE

Possible damage to the unit!

Required maintenance work is signalled in the form of warnings.

Acknowledge these warning only, when the required maintenance has actually been carried out!

If the unit is not serviced, its service life and reliability are reduced. Please note that damage resulting from improper handling is not covered by the warranty!

Use only genuine spare parts.

More information about servicing can be found in Chapter 8.

5.3.4.9 Code 51: Off-load, off, star/delta time

The relevant times can be entered successively at operating levels 0 to 2.

0: Off-load time
Adjustment range: 10 - 1200 s. Operation in conjunction with Code 2 (operating mode). Is used in the operating modes "Automatic" and "Automatic optional".

1: Off time
Adjustment range: 0 - 60 s. The factory setting of 45 s should be retained. During the off time, the motor is running in the idle mode; no compressed air is generated. The off time elapses

- when key ⓪ is pressed for switching off
- during automatic restart
- according to the Automatic optional mode

2: Star/delta time
Adjustment range: 3 - 30 s. Determines after which time changing over is to take place from star to delta circuit when the motor is switched on.

5.3.4.10 Code 65: Condensate valve

Is used for adjusting the impulse and break times of the condensate valve.

0: Impulse time
Duty cycle of the condensate valve

1: Break time
Off time of the condensat valve

5.3.4.11 Code 90: Unit for pressure indication

Determines the unit for the pressure indication:

0: bar
1: MPa
2: psi

5.3.4.12 Code 95: Unit for temperature indication

Determines the unit for the temperature indication:

0: Degree Celsius (°C)
1: Degree Fahrenheit (°F)
2: Kelvin (K)

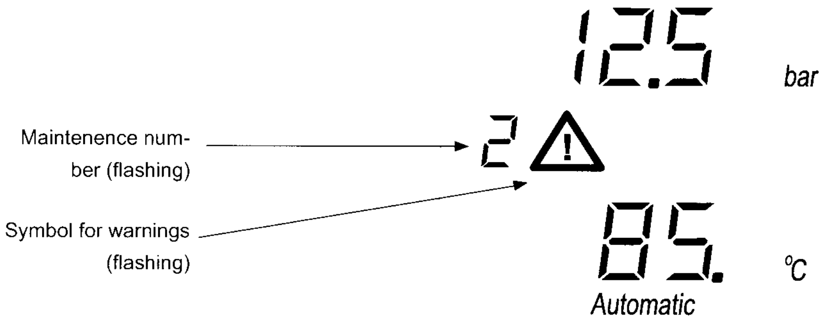
5.3.4.13 Code 999: Software version

Indicates the software version of Air Control 1.

5.3.5 Warnings / maintenance work

A warning is present when the red light is blinking.
The compressor is not switched off.

The following is displayed:



Meaning of maintenance numbers:

2	Excessive final compression temperature
3	Excessive line pressure
11	Remaining time until air filter is to be serviced < 100 h
12	Remaining time until cooling fluid / cooling fluid filter is to be serviced < 100 h
13	Remaining time until fine separator is to be serviced < 100 h
14	Remaining time until motor is to be lubricated < 100 h
15	Remaining time until compressor is to be serviced < 100 h

NOTICE

Damage to the system is possible!

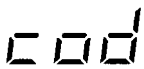
Necessary service work appears in the form of warnings.

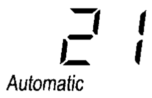
Acknowledge these warnings only when the defined service work has actually been carried out!

Service work not carried out degrades the service life reliability of the system. Please note that damage caused by improper usage is not covered by the warranty!

Only original spare parts may be used.

Information on service: see Chapter 8.





Acknowledge maintenance work:

1. Press key ⓪ (ca. 3 sec.) until the message “cod“ appears in the display.
2. Select Code 21 using keys ▲ and ▼.
3. Press **ENTER**, then ⓪ .

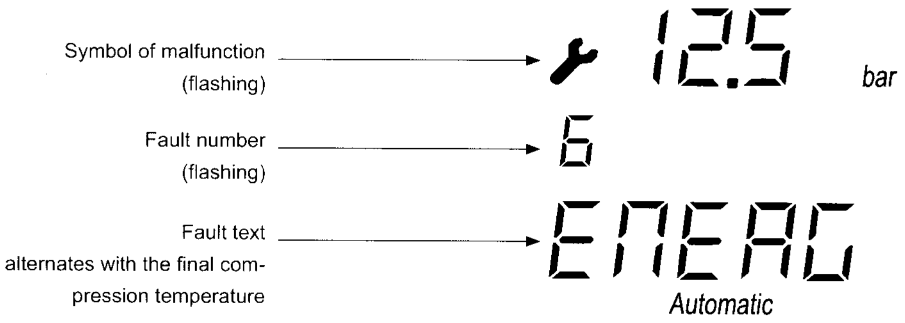
5. Displays and operating elements

5.3.6 Malfunctions

Malfunction has occurred when the red light is permanently on.

The compressor is stopped automatically.

The following is shown in the display:


Symbol of malfunction (flashing)
Fault number (flashing)
Fault text alternates with the final compression temperature
12.5
bar
6
EMERG
Automatic

Meaning of fault numbers and texts:

1	Par	Incorrect pressure setpoints
2	EPROM	Incorrect setting parameters
3	Lo AC	Undervoltage
4	No AC	Power failure
5	OEFEC	Air Control 1 defective
6	Emerg	EMERGENCY OFF actuated
7	Rotat	Wrong direction of rotation
8	Mot t	Excessive motor temperature
9	Hi cur	Overcurrent
10	Hi P	Overpressure
11	Dif P	Differential pressure of fine separator
12	Se t	Sensor for final compression temperature
13	Se oil	Sensor for cooling fluid temperature
14	Se P	Pressure sensor
15	Hi t	Excessive final compression temperature
16	Hi P	Excessive line pressure

Malfunctions can only be acknowledged when the cause has been professionally repaired. Troubleshooting and repair should be done exclusively by qualified personnel!

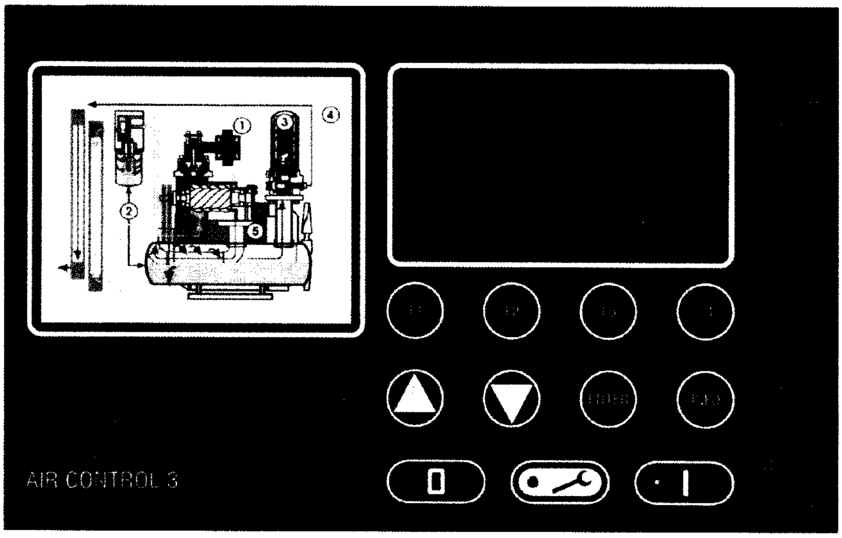
Acknowledge fault messages:

1. press key (0).
2. press key (I) in order to restart the compressed air generation.

5.4 Air Control 3 (option)

The operating / display desk of the Air Control 3

- displays the plant states / operating data
- switches on and off compressed air generation
- is used for plant parameterizing.

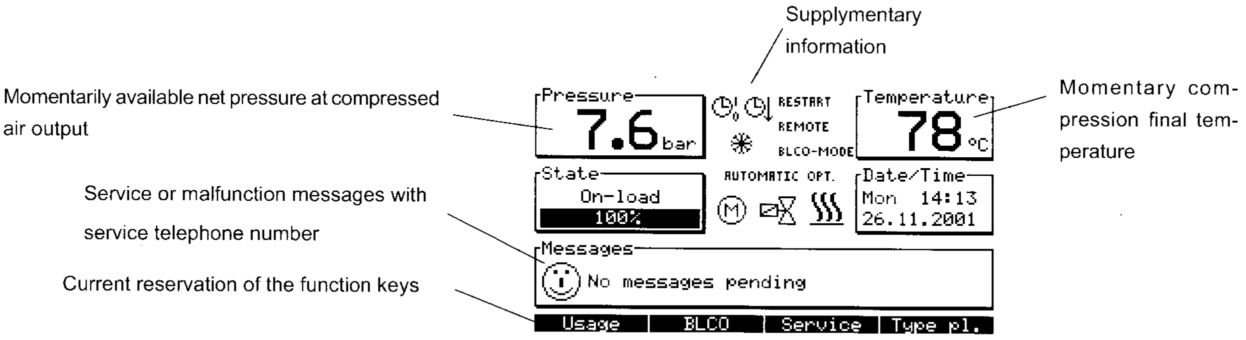


(F1)(F2)(F3)(F4)	Function keys
▲ ▼	Modification of parameter values Selection of sub-menus
Enter	Confirmation of parameter changes Editing modes in the sub-menus
Info	Display additional operation data.
○ I	Switch on compressor. Integrated green LED Blinking: compressor is not running, can at any time be automatically started up. Lighted: Compressor is running.
0	Compressor shut down.
☼	Signals a current warning/malfunction with the integrated red LED.

5. Displays and operating elements

5.4.1 Basic display

After switching on the main switch or during normal operation, Air Control 3 will inform you about the plant condition.


Supplymentary information
Momentarily available net pressure at compressed air output
Service or malfunction messages with service telephone number
Current reservation of the function keys
Momentary compression final temperature
Pressure
7.6 bar
RESTART
REMOTE
BLCO-MODE
Temperature
78 °C
State
On-load
100%
AUTOMATIC OPT.
Date/Time
Mon 14:13
26.11.2001
Messages
No messages pending
Usage
BLCO
Service
Type pl.

Supplementary information:

◷ I 0	Switching times are programmed **Symbol flashes:** Compressor was switched off by the timer **Symbol ON:** Compressor was switched on by the timer	5.4.4.4
◷↓	Pressure times are programmed	5.4.4.4
❄	Anti-freeze active, compressor does not start up.	6
RESTART	Automatic restart programmed	5.4.4.2
REMOTE	Remote control mode programmed **Symbol flashes:** Compressor OFF **Symbol ON:** In remote mode, Compressor ON	5.4.4.7
LLC MODE	On-load/off-load controlled by higher-level control	5.4.4.7
AUTOMATIC OPT.	Meaning: Display of programmed off-load running control	
Ⓜ	Motor running	
⊠⧖	Solenoid valve open	
♨	Additional heater switched on	

5.4.2 ON/OFF switching of compressed air generation

Switching ON: press key (I).

The compressor is ready and can start up automatically at any time.

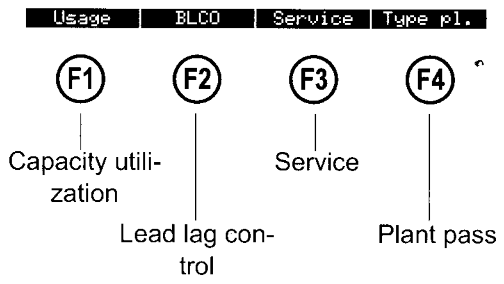
Switching OFF: press key (0).

For the duration of the standstill time, the compressor switches to the idling state and afterwards off.

5.4.3 Function key reservation in the basic display

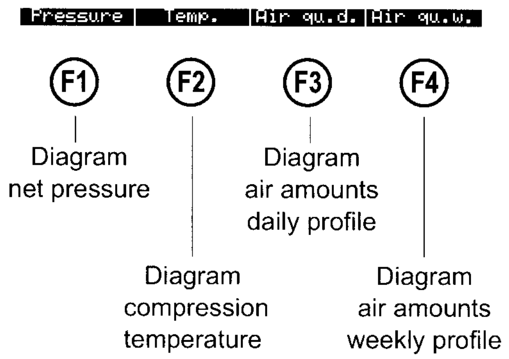
In the basic display, the following informative pictures can be accessed with the function keys:

Mode 1 = reservation 1



With the key ▲ and ▼ , the mode and therefore the reservation of the function keys in the basic display can be changed.

Mode 2 = reservation 2


Pressure
Temp.
Air qu.d.
Air qu.w.
F1
F2
F3
F4
Diagram net pressure
Diagram compression temperature
Diagram air amounts daily profile
Diagram air amounts weekly profile

By pressing the defined function key, the respective information screen is opened.

The key F4 returns to the basic display from all information screens.

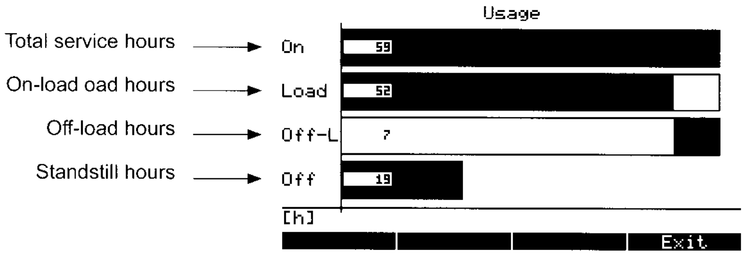
5. Displays and operating elements

5.4.3.1 Capacity utilization (Mode 1 - F1)

Change of mode 5.4.3

This diagram represents the running, off-load, on-load, and standstill hours in the form of bar diagrams. The respective current hour count is also displayed in the bars.

Example:



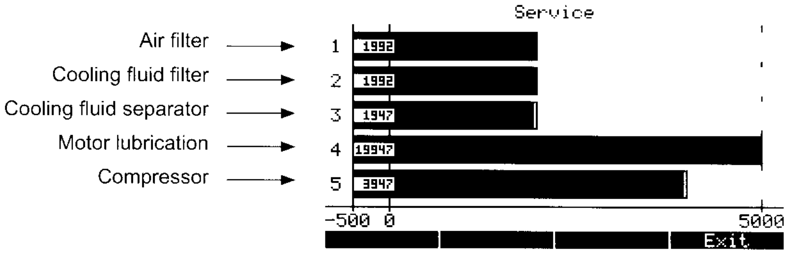
With the exception of the off-load hours, all bars are represented from the left and growing to the right. The sum of the on-load hours and the off-load hours yields the total service hours.

The scaling units of this diagram are according to the service hours. If the number of the standstill hours is greater than the service hours, the bars of the standstill hours will be cut off. In this case note the displayed hour count in the bars.

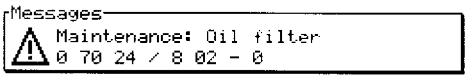
5.4.3.2 Service (Mode 1 - F3)

Change of mode 5.4.3

The Service diagram shows the remaining time in hours until the respective service interval is due.



If the remaining time is less than 100 hours until the next service, the respective bar begins to blink and a defined warning appears on the display.

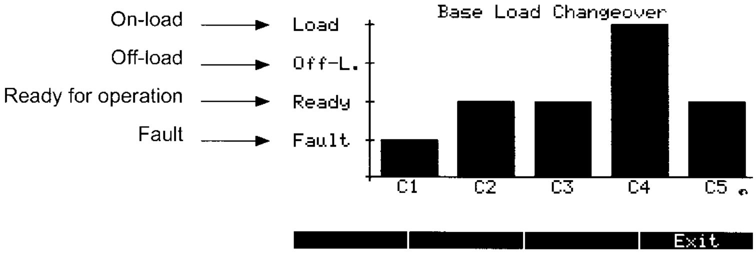

Messages
Maintenance: Oil filter
0 70 24 / 8 02 - 0

5.4.3.3 LLC status (mode 1 - F3)

Change of mode 5.4.3

This display is only available if “Lead lag control” was activated by selecting “YES” in the Lead lag control menu (see Chapter 5.4.4.8).

This display shows the status of 4 additional compressors (K2 - K4) when one additional LLC module is used, or 8 additional compressors (K2 - K9) when two additional LLC modules are used.

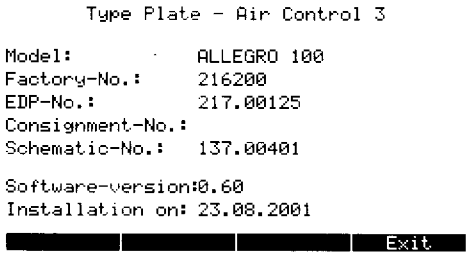


“Fault” and “Off-load” are displayed for compressors K2 - K5 (or K2 - K9) only, if the corresponding feedback (fault and motor running) is wired to the additional module.

5.4.3.4 Compressor pass (Mode 1 - F4)

Change of mode 5.4.3

The individual machine data stored in the compressor pass are required for our customer service.

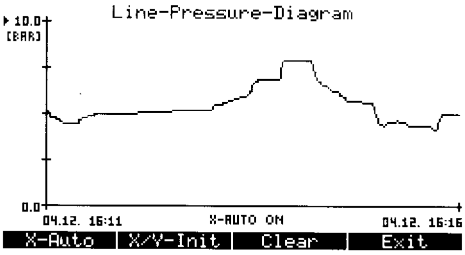


```
Type Plate - Air Control 3

Model:             ALLEGRO 100
Factory-No.:       216200
EDP-No.:           217.00125
Consignment-No.:
Schematic-No.:     137.00401

Software-version:0.60
Installation on: 23.08.2001
```

5.4.3.5 Diagram net pressure (Mode 2 - F1)

Change of mode 5.4.3

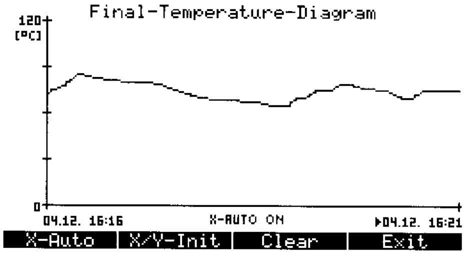
In this diagram, the current process of the net pressures is displayed.



5.4.3.6 Diagram final compression temperature (Mode 2 - F2)

Change of mode 5.4.3

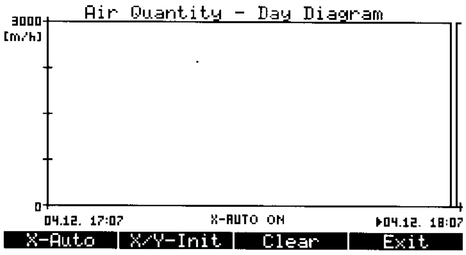
In this diagram, the current process of the final compression temperature is displayed.



5.4.3.7 Diagram compressed air amount / day profile (Mode 2 - F3)

Change of mode 5.4.3

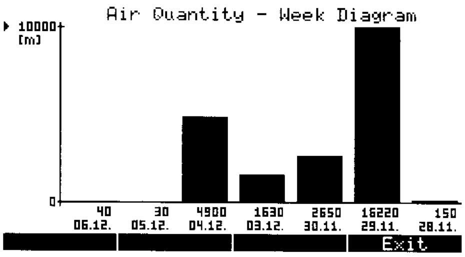
In this diagram, the current process of the compressed quantity for a day is displayed.



5.4.3.8 Diagram compressed air amounts / week profile (Mode 2 - F4)

Change of mode 5.4.3

In this diagram, the current process of the compressed air quantity for a week is displayed.



5.4.3.9 Modify diagram settings

X-AUTO settings 5.4.4.6

The scale divisions of the axis can be changed by editing the axis values.

y-axis: - The values of the y-axis can be changed in every diagram. The data in the diagram are continually updated even after the edit function.

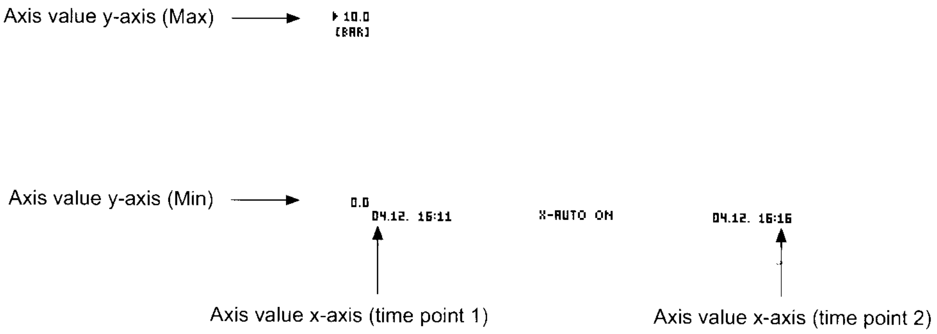
x-axis: - In the diagram "air qty.wk.", the x-axis values cannot be changed, changes are possible in all other diagrams

- After editing the x-axis values, the diagram is no longer continually updated.

X-AUTO: - The key (F1) activates or deactivates X-AUTO

- If "X-AUTO ON", the values of the x-axis are automatically updated. The X-AUTO uses the preset default values defined in the menu "Display parameter diagrams "(see Chapter 5.4.4.6).The manual editing x-axis values are deleted.

Procedure for the scale division of the axis.



1. Selection of the axis values to be changed with the keys ▲ and ▼
2. Confirmation of the selection with **ENTER**
3. Modification of the blinking value with ▲ and ▼.
   Moving the cursor with (F1) and (F2).
4. Confirmation of the modifications with **ENTER.**

The key (F2) „X/Y-Init“ is for resetting the scale division for the default values preset in X-AUTO.

The key (F3) Ideletes the recorded measurement values of the currently displayed time diagram.

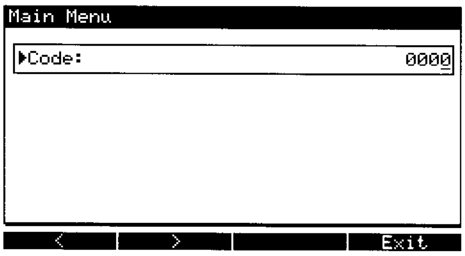
5. Displays and operating elements

5.4.4 Menu system

Limit values 5.4.4.1
Operating parameters 5.4.4.2
Service intervals 5.4.4.3
Timer 5.4.4.4
Malfunction storage 5.4.4.5
Display parameter 5.4.4.6
Configuration 5.4.4.7
Lead lag control 5.4.4.8
Accessories 5.4.4.9
Diagnose 5.4.4.10

All basic settings of the system can be viewed in the menu system. If the modifications have no influence on operational safety, they may be modified by means of a code entry.

After pressing the **INFO** key, the main menu appears requesting the code entry.

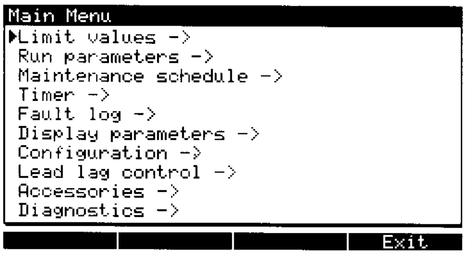


▸Code: 0000

- Code **0000**: View the basic settings
- Code **0001**: View and change basic settings

1. Modification of the blinking values with the keys ▲ and ▼. Moving the cursors with (F1) and (F2).
2. Confirmation of the modifications with **ENTER**.

Thereafter, the main menu appears with the following sub-menus:



The sub-menu can be selected with the keys ▲ and ▼ .The selection is confirmed with **ENTER**.

In every operating level, (F4) will lead you to the next higher operating level.

If the Code **0001** is entered, the parameters of the sub-menu should be changed as follows:

1. The selection of the desired menu position is carried out with the keys ▲ and ▼.
2. The selection is confirmed with **ENTER**.
3. Modification of the blinking value with the keys ▲ and ▼.
   Moving the cursor with (F1) and (F2).
4. Confirmation of the modifications with **ENTER.**

5.4.4.1 Sub-menu Limit values

▲ ▼	Selection of the menu position Modification of the blinking values
ENTER	Confirm selection/modification
(F4)	Back to the next higher level

This menu contains the pressure / temperature limit values:

Start pressure	Lower value for the pressure regulation	Can be edited
Stop pressure	Upper value for the pressure regulation	Can be edited
Safety pressure	Maximum permissible pressure for malfunction triggering (always 0.8 bar greater than stop pressure)	Display
Final compression temperature min	Minimum permissible final compression temperature	Display
Final compression temperature max	Maximum permissible final compression temperature	Display

5.4.4.2 Sub-menu Operating parameters

This menu contains parameters which influence the temporal regulation of the compressor:

▲ ▼	Selection of the menu position Modification of the blinking values
ENTER	Confirm selection/modification
F4	Back to the next higher level

Run-on time	Run-on time of the motors in automatic operation	Display
Off time	Run-on time of the motor for manual switching-off delay and for automatic restart	Display
Star/delta time	Star/delta time	Display
Automatic restart	Start after voltage return	Can be edited
Operating mode: Setting range:	Behavior on load switching AUTOMATIC ON-/OFF-LOAD AUTOMATIC OPT.	Can be edited
Max. pressure loss	Maximum pressure loss	Display
Max. no. of motor starts	Maximum switching cycles of the motor per hour	Display

Operating mode "Automatic"

The text "AUTOMATIC" is displayed in the basic display. After reaching the stop pressure, the system changes over to the off-load mode (after running time) for the duration of the run-on time and the basic display shows the text "run-on time" with the respective residual time. At the conclusion of the run-on time, the motor switches off. The compressor can be started up automatically at any time after falling below the start pressure.

Operating mode "On-/off-load"

The text "ON-/OFF-LOAD" is displayed in the basic display. The compressor switches between on-load and off-load operation, which means that its run-on time is unlimited.

Operating mode "Automatic Optional"

The text "AUTOMATIC OPT." is displayed in the basic display. After reaching the stop pressure, the system goes into the off-load mode.

After 10 and after 40 seconds the net pressure is measured.

If the pressure drops above the threshold "Max. pressure drop", then the system is in the idling state for the duration of the run-on time. In the basic display, the text "Run-on" appears with the residual time as defined.

If the value lies below the threshold "Max. pressure drop", then the system switches off after completing the OFF time.

Max. no. of motor starts

If the number of the maximum possible motor starts per hour is exceeded, then the compressor temporarily switches to the operation mode on-/off-load.

5.4.4.3 Sub-menu Service intervals

Service work acknowledged 5.4.5

In this menu, all service intervals are displayed, or acknowledged after carrying out the specific service (see Chapter 5.4.5).

With the acknowledgement, the displayed residual time for the value of the respective service intervals (see Chapter 8.1) is reset.

Service interval ASF	Service interval air filter	Display
Service interval OLF	Service interval cooling fluid filter	Display
Service interval OLAB	Services interval cooling fluid separator	Display
Service interval motor	Service interval for motor lubrication	Display
Service interval compr.	Service interval compressor	Display
Service hours	Total operating hours (motor on)	Display
Load hours	Accumulated load hours	Display
Standstill hours	Accumulated standstill hours (system on motor off)	Display

5.4.4.4 Sub-menu Timer

The adjustment of the integrated real-time clock, as well as all switching processes dependant upon it are in this menu.

▲ ▼	Selection of the menu position Modification of the blinking values
ENTER	Confirm selection/modification
F4	Back to the next higher level

Date/time	Setting the current date and time Attention: The adjustment is entered to the real-time clock when the seconds are confirmed with **ENTER**	Edit
Compressor switching times	Branch to the sub-menu	Edit
Compressor pressure times	Branch to the sub-menu	Edit
Switching times LLC	Branch to the sub-menu	Edit
Pressure times LLC	Branch to the sub-menu	Edit

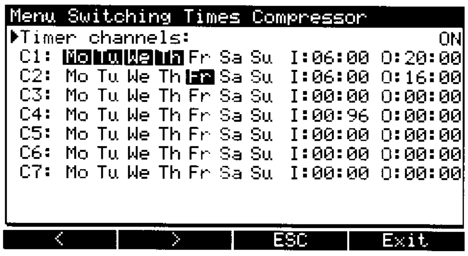
Switching times as well as pressure times can be programmed with the timer independently of each other.

When programming switching times, the compressor needs no longer be manually switched on and off. This is to prevent the possibility that the compressor might for instance start up automatically at night in order to compensate for loss in the compressed air net.

For a limited time, values deviating from the preset limit values (see Chapter 5.4.4.1) can be set for the start and stop pressure. In this way only the minimal required operating pressure is always generated so that energy is saved.

Switching times for compressor

In this menu, the switching on/off times of the compressors are defined.



Timer clock output active:
Mo - Th 6:00 until 20:00 o'clock
Fr 6:00 until16:00 o'clock

```
Menu Switching Times Compressor
▶Timer channels:                         ON
 C1: Mo Tu We Th Fr Sa Su  I:06:00 O:20:00
 C2: Mo Tu We Th Fr Sa Su  I:06:00 O:16:00
 C3: Mo Tu We Th Fr Sa Su  I:00:00 O:00:00
 C4: Mo Tu We Th Fr Sa Su  I:00:96 O:00:00
 C5: Mo Tu We Th Fr Sa Su  I:00:00 O:00:00
 C6: Mo Tu We Th Fr Sa Su  I:00:00 O:00:00
 C7: Mo Tu We Th Fr Sa Su  I:00:00 O:00:00
```

For the activation of the timer, the parameter of the timer channels must be set to “ON” in the highest menu line.

If the timer channel is set to “ON” and

- if the timer clock output is activated, a clock appears in the display
- if the timer output is not activated, a blinking clock appears in the display

Seven switching times with the channels K1 –K7 can be programmed.

A channel is active when at least one of the weekdays is marked black. In order to continuously activate the timer output for one or a number of days, the switching time should be set to 00:00.

Adjust switching times (weekdays marked black):

1. Channel selection with the keys ▲ and ▼
2. Confirm selection with **ENTER**.
3. Move the cursor to the desired weekday by using key (F1) and (F2). (In order to delete an already selected weekday, press key ▲.)
4. Set the cursor with (F1) and (F2) onto the clock time and use keys ▲ and ▼ to modify the blinking value.
5. Store the settings with the key **ENTER**.

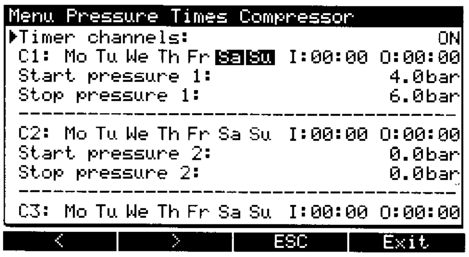
NOTICE

If the timer for switching times is activated, then the compressor only works during the switching times entered!

Compressor pressure times

In this menu, the pressure times of the compressors are defined (increasing pressure / decreasing pressure).

Timer clock output active:
Sa - So 0:00 until 24:00 o'clock
(= from Sa 0:00 o'clock until Su 24:00 o'clock)



```
Menu Pressure Times Compressor
▸Timer channels:                      ON
 C1: Mo Tu We Th Fr Sa Su  I:00:00 O:00:00
 Start pressure 1:                4.0bar
 Stop pressure 1:                 6.0bar
 -------------------------------------
 C2: Mo Tu We Th Fr Sa Su  I:00:00 O:00:00
 Start pressure 2:                0.0bar
 Stop pressure 2:                 0.0bar
 -------------------------------------
 C3: Mo Tu We Th Fr Sa Su  I:00:00 O:00:00
```

In order to activate the timer, the uppermost menu row of the parameter for the timer channels must be set to “ON”.

A channel is active when at least one of the weekdays is marked black. (For switching times adjustment: see paragraph “Compressor switching times”)

The channels are searched beginning with K1 to K7 to determine whether a channel is activated for the current clock time. If no valid channel is found, then the settings in the menu “limit values” are valid. In order to activate the timer output for one or a number of days continuously, the switching time of 00:00 should be entered.

Switching times LLC /pressure times LLC

Switching times or pressure times can only be entered if the supplementary module for Lead lag control (LLC) is installed in the control system.

The settings are to be carried out as described in “Compressor switching times” or “Compressor pressure times”

5.4.4.5 Sub-menu Fault log

In this menu you can view the last 20 services, warnings and faults with indication of the date and time.

5.4.4.6 Sub-menu Display parameters

In this menu, the parameters for the output to the display are stored.

▲ ▼	Selection of the menu position Modification of the blinking values
ENTER	Confirm selection/modification
F4	Back to the next higher level

Pressure dimension	Selection of the unit for the display of the line pressure	Edit
Temperature dimension	Selection of the unit for the display of the final compression temperature	Edit
Language	Selection of the display language	Edit
Pressure offset	Readjustment possibility for the net pressure sensor	Display
Diagrams	Settings for diagrams	Edit
Texts	Texts for the compressor pass	Display

Diagrams

In this menu, the display parameters (default values X-AUTO - see Chapter 5.4.3.8) for the diagrams can be set:

Saving interval	Saving interval for the recording of the line pressure, the final compression temperature of the momentary delivery quanitiy. The control system always saves the most recent 8000 values. For a saving interval of 12s (basic setting) there is a logging duration of 12s x 8000 = 96000s = 26.7h
Number of points X-auto	Number of the recorded values for function X-Auto on the time axis at a saving interval of 12 s and up to 300 points for X-Auto a time axis scaling of 12s x 300 =3600s =1h
Line pressure low	Lower scale value of the x-axis of the diagram "line pressure" (see 5.4.3.4)
Line Pressure high	Upper scale value of the x-axis of the diagram "line pressure" (see 5.4.3.4)
Temperature low	Lower scale value of the x-axis of the diagram "Final compression temperature" (see 5.4.3.5)
Temperature high	Upper scale value of the x-axis of the diagram "Final compression temperature" (see 5.4.3.5) (basic setting 120 °C)
Air quantity day low	Lower scale value of the x-axis of the diagram "Compressed air quantity daily profile" (see 5.4.3.6
Air quantity day high	Upper scale value of the x-axis of the diagram "Compressed air quantity daily profile" (see 5.4.3.6)
Air quantity week low	Lower scale value of the x-axis of the diagram "Compressed air quantity weekly profile" (see 5.4.3.7)
Air quantity week high	Upper scale value of the x-axis of the diagram "Compressed air quantity weekly profile" (see 5.4.3.7)

5.4.4.7 Sub-menu Configuration

▲ ▼	Selection of the menu position Modification of the blinking values
ENTER	Confirm selection/modification
(F4)	Back to the next higher level

Machine type	Selection of a pre-defined machine type	Display
Maximal pressure	Maximum permissible machine pressure	Display
Maximal air flow	Delivered air quantity at maximum speed in on-load operation	Display
Remote mode	Switching on/off of the system	Edit
LLC operation	Operation with external base load alternate switching	Edit
Power fail Stop	Switching-off when low voltage is recognized	Display
Frequency converter	Settings of the frequency converter	Display
Communication	Settings for serial communication	Display
Heating	Settings of the additional heater	Display

Remote mode

Determines how the compressor is switched on or off.

Local operation: The compressor can only be switched on or off at the operating/display desk of Air Control 3.

Remote control: The compressor can be switched on or off with an electrical signal or the key (0). In the basic display appears as the blinking text “REMOTE”.

NOTICE

During active remote operation, the signal of the remote control must be switched off after pressing the key (0).

LLC OK: Is for the notification of readiness for operation of a superior control system to the compressor. (see also LLC Operation 5.4.4.9)

LLC mode

The compressors are controlled by a higher-level control system. The text “LLC MODE” (see also Remote Mode 5.4.4.9) appears in the basic display

5.4.4.8 Sub-menu Lead lag control (LLC)

▲ ▼	Selection of the menu position Modification of the blinking values
ENTER	Confirm selection/modification
F4	Back to the next higher level

This menu contains the settings for the operation as the LLC Master.

For the utilization of the function "Lead lag control", Air Control 3 must be fitted with

- a supplementary module for up to 4 additional compressors
- two supplementary modules for up to 8 additional compressors.

Lead lag control	Parameter for the activation of the LLC Master characteristics (basic setting: NO)	Display
Start pressure	Lower pressure threshold for switching on a compressor	Edit
Stop pressure	Upper pressure threshold for switching off a compressor	Edit
Start delay	Minimal time between the switching on of two compressor (basic setting:5 s)	Edit
Stop delay	Minimal time between the switching off of two compressors (basic setting:2 s)	Edit
Changeover interval Priority 1	Time between changeovers of LLC for compressors having priority 1	Edit
Changeover interval Priority 2	Time between changeovers of LLC for compressors having priority 2	Edit
Changeover interval Priority 3	Time between changeovers of LLC for compressors having priority 3	Edit
Priorities	Assignment of sequencing priority	Edit

(see also Chapter 5.4.4.7)

5.4.4.9 Sub-menu Accessories

This menu contains the settings for the connection of accessories.

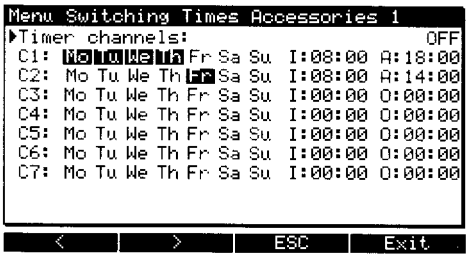
To be able to utilize this function, Air Control 3 must be fitted with accessories modules.

Accessories module	Additional module for accessories available	Display
Input configuration	Function of digital inputs	Edit
Output configuration	Function of digital outputs	Edit
Switching times output 1	Switching times defined for accessories 1	Edit
Switching times output 2	Switching times defined for accessories 2	Edit
Switching times output 3	Switching times defined for accessories 3	Edit
Switching times output 4	Switching times defined for accessories 4	Edit

Switching times

The switching on/off times of an accessory relay output are defined in this menu.

Timer clock output active:
Mo - Th 8:00 until 18:00 o'clock →
Fr. 8:00 until 14:00 o'clock →



```
Menu Switching Times Accessories 1
▸Timer channels:                     OFF
 C1: Mo Tu We Th Fr Sa Su I:08:00 A:18:00
 C2: Mo Tu We Th Fr Sa Su I:08:00 A:14:00
 C3: Mo Tu We Th Fr Sa Su I:00:00 O:00:00
 C4: Mo Tu We Th Fr Sa Su I:00:00 O:00:00
 C5: Mo Tu We Th Fr Sa Su I:00:00 O:00:00
 C6: Mo Tu We Th Fr Sa Su I:00:00 O:00:00
 C7: Mo Tu We Th Fr Sa Su I:00:00 O:00:00
```

For the activation of the timer, the uppermost menu row of the parameter of the timer channels must be set to "ON".

Seven switching times can be programmed with the channels K1 –K7. One channel is active when at least one of the weekdays is marked black.

For adjustment of the switching times, see paragraph "Compressor switching times " Chapter 5.4.4.4.

In order to continually activate the timer output for one or a number of days, set the switching time to 00:00.

Input configuration

The inputs 1 to 8 can be used in order to switch the compressor to malfunction or warning.

5.4.4.10 Sub-menu Diagnosis

This menu describes the current states of digital inputs and outputs.

5. Displays and operating elements

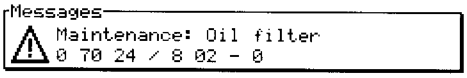
5.4.5 Warnings / maintenance

A warning is present when the red light is blinking.

The compressor is not switched off.

The display contains the additional information:

- blinking symbol warning triangle
- type of warning
- telephone number of the service hotline



```
Messages
⚠ Maintenance: Oil filter
  0 70 24 / 8 02 - 0
```

What to do for specific warnings/maintenance work is described in Chapter 8.

NOTICE

Damage to the system is possible!

Necessary maintenance work appear as warnings.

Acknowledge these warnings only when the defined maintenance work has actually been carried out!

Maintenance work not carried out degrades the service life and reliability of the system. Please note that damage because of improper usage might invalidate the warranty!

Only original spare parts may be used.

Information on service: see Chapter 8.

Services work acknowledged:

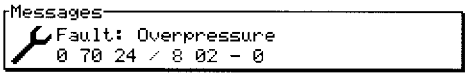
1. As described in Chapter 5.4.4, call up the main menu and then the submenu Maintenance schedule.
2. Select the maintenance work to be carried out using keys ▲ and ▼.
3. Press key F3 to acknowledge the service.
4. By double clicking key F4 you will return to the basic display.

5.4.6 Malfunctions

A malfunction has occurred when the red light is permanently on.

The compressor is stopped automatically.

In addition, the display also shows:
- blinking symbol tool key
- type of malfunction
- telephone number of the service hotline



```
Messages
Fault: Overpressure
0 70 24 / 8 02 - 0
```

Malfunctions can only be acknowledged when the cause has been professionally repaired. Troubleshooting and repair should be done exclusively by qualified personnel!

Fault messages acknowledged:
1. press key 0.
2. press key 1 in order to restart the compressed air generation.

6. Correcting malfunctions

Error	Cause	Measures
Compression temperature too high (red lamp is on)	- Silencing hood not closed	- Check and secure sound-insulation hood
	- Intake or ambient temperature too high	- Ventilate compressor room
	- Cooling air inlet or outlet blocked	- Make sufficient room
	- Cooling fluid filter fouled	- Renew cooling fluid filter
	- Insufficient cooling fluid	- Add cooling fluid
	- External cooling fluid heat exchanger fouled! **Attention:** Cooler screw should always be worked with a counter wrench; keep from applying torque to the cooler	- Clean with compressed air. In the case of extensive fouling: disassemble cooler and clean with high pressure cleaner. **Attention: Danger of short circuit!** Do not put electrical elements under power
Line pressure falls	- Compressed air consumption greater than delivery quantity of the compressor	- A compressor with larger delivery quantity is required
	- Air filter is fouled	- Replace air filter
	- Relief valve blows air during compression	- Check relief valve; if necessary, replace seals
	- Suction regulator does not open	- Check solenoid valve regulator spool and if necessary, replace
	- Leakage in the pipework	- Make pipework airtight
System pressure released by safety valve	- Line pressure set too high	- Adjust line pressure anew
	- Safety valve defective	- Check safety valve; if necessary, exchange
	- Minimum pressure valve blocked	- Exchange solenoid valve
	- Cooling fluid separator cartridge fouled	- Exchange cooling fluid separator cartridge
"Malfunction over-pressure" or **"line pressure too high"** (red lamp is on)	- Cooling fluid separator fouled	- Replace cooling fluid separator
	- Higher external pressure in the compressed air net	- Equalize outside pressure or remove from net

Error	Cause	Measures
Compressor does not start automatically or does not deliver air after previous switching off upon reaching the final pressure or from off-load state.	- Net pressure set too high	- Adjust net pressure anew
	- Interruption in the control current circuit	- Check electric circuit for interruption (only by a trained electrician)
	- Ambient temperature under +1 °C; message “**Cooling fluid temperature too low** “	- Install an additional heater or keep compressor room at right temperature
	- Switching times have been activated in Air Control 3	- Check switching times and pressure times in Air Control
System does not start on pressing the start button (I)	- Line pressure greater than start pressure	- Note line pressure value
	- Remote control activated	- Symbol “remote “ is blinking
	- Missing voltage at the compressor	- Check if voltage is applied
	- Electrical error in the control system	- Inspect (only by an trained electrician)
	- Switching times have been activated in Air Control 3	- Check switching times in the Air Control 3
Compressed air containing large amount of cooling fluid (cooling fluid consumption too great)	- Cooling fluid return flow piping is congested	- Clean cooling fluid feedback piping
	- Defective cooling fluid separator	- Replace cooling fluid separator
System stopped before reaching the final pressure (red lamp is on)	- Overtemperature or overpressure	- Rectify error as required
	- Interruption in the control current loop	- Check current loop (only by a trained electrician)
Water in the piping net	- Dryer switched off	- Switch on dryer
	- Condensation diverter is not functioning	- Clean / exchange drain
	- Bypass open	- Close bypass
	- Dew point too high	- Demand customer service
Pressure decline	- Pressure differential in the filter too great	- Exchange filter

7.4 Rotational direction control

The rotational direction of the main motor must be checked.

1. Remove the panel from the unit so that a part of the V-belt is visible.
2. Switch the compressor main switch on.

NOTICE

Operating the motor in the incorrect direction of rotation may cause damage to the system! Turning just a few seconds in the wrong direction of rotation is sufficient to damage the compressor! To check the direction of rotation you may start up the motor only briefly!

3. Observe the motor shaft and press keys (I) and (0) **in short succession.** The V-belt must turn in the direction of the arrow shown on the main motor.

   In the case of the wrong direction of rotation, have the phase sequence corrected by a qualified electrician by interchanging the two supply phases while the compressor is switched off and protected against unwanted starting.

7. Initial commissioning

7.5 Basic settings

In order to understand compressor basics, please read the chapter 5 “Compressor operating elements “.

7.5.1 Controlling the unit by means of Air Control 1

For more detailed instructions with regard to the basic settings of the unit, please refer to:

- Chapter 5.3, Air Control 1,
- Chapter 5.3.1, Basic display
- Chapter 5.3.4, Menu system

Please set the display parameters as described in the following chapters:

- Pressure unit, Chapter 5.3.4.11
- Temperature unit, Chapter 5.3.4.12

The limit values for

- start pressure and
- stop pressure

can be set as described in the section “Basic parametersation”, Chapter 5.3.4.2.

7.5.2 Controlling the unit by means of Air Control 3 (option)

More precise instructions on the basic settings of the system can be found in the following chapters :

- Chapter 5.4 Air Control 3 (option),
- Chapter 5.4.1 Basic display
- Chapter 5.4.4 Menu system

The display parameters

- pressure dimension,
- temperature dimension,
- language

can be modified as described in position 5.4.4.6.

The limit values

- start pressure
- stop pressure

can be modified as described in position 5.4.4.1.

If your Air Control 3 has been fitted with the supplementary module LLC, carry out settings as in point 5.4.4.7 5.4.4.9 of the description.

If your Air Control 3 has been fitted with the supplementary module “accessories”, carry out settings as in point 5.4.4.10 of the description.

7.6 Switch on compressed air generation

1. Before switching on the system, make certain that no one can be endangered by doing so. The sound-insulation hood serves as a part of the contact protection, among other things for the cooling air conduits of the compressor plant. It must be closed during operation.
2. Carefully open the shut-off valve after the compressed air connector and between system compressed air net (receiver). The system is now connected to the net.
3. Switch on the main switch.
4. Make certain that no tools or loose objects are lying on or in the system.
5. Press key (I) to switch on the compressed air generation.

The green LED in key (I) lights up when the compressor is working.

Check on the operating display desk for the line pressure.

The line pressure will slowly rise if the compressed air consumption is less than the quantities delivered by the compressors.

⚠

DANGER

On blinking green LED, the compressor can start by itself at any time!

The green LED blinks when the compressor is ready for operation.

The compressor switches on automatically when

- the current line pressure drops below the preset start pressure of the compressor, if
- the machine temperature rises above +1 °C,
- the timer of Air Control 3 is active,
- or the Lead lag control (LLC) is activated.

7.7 Concluding activities

1. Check all piping of cooling liquids and pressure air conduits for leakage.
2. Check the cooling fluid level of the compressors after 10 and before 20 minutes operation time. If the cooling fluid level is too low, refill cooling fluid as defined in Chapter 8 “Check cooling fluid level /cooling fluid refill”.
3. Check the compressor temperature. The compressor temperature should not fall under approx. 75 °C and not rise above 110 °C; at 110 °C a warning is issued, at 120 °C the compressor automatically shuts down.
4. Re-tighten all electrical connections after a week.
5. Carry out all service intervals according to Chapter 8 “Overview of maintenance intervals”.
6. Check the standard operation of the functions carried out weekly according to Chapter 8 “Overview of maintenance intervals”

8. Service

8.1 Overview Maintenance intervals

Preparatory activities 8.2
Check cooling fluid level / refill cooling fluid 8.3
Check for leakage 8.4
Check the compressor temperature 8.5
Check the cooler for fouling 8.6
Check for condensate 8.7
Replace cooling fluid / Replace cooling fluid filter 8.8
Recommended cooling fluid 8.9
Replace cooling fluid separator 8.10
Replace air filter 8.11
Check safety valve 8.12
Check drive 8.13
Lubrication of electric motor 8.14
Recommended lubricant for motors 8.15
Concluding activities 8.16

Necessary service work appears in the display as warnings (see Chapter 5.3.5 or 5.4.5)

Service activities	**Chap.**	**After the first 100 operating hours**	**After the first 500 operating hours**	**Every week**	**Every 500 operating hours**	**Every 2000 operating h. but at least once a year**
Check cooling fluid level	8.3	○		○		
Check for leakage	8.4	○		○		
Check compressor temperature	8.5	○		○		
Check cooler for fouling	8.6	○		○		
Check for condensate	8.7	○		○		
Replace cooling fluid and cooling fluid filter	8.8		○			○
Replace cooling liquid separator	8.10					○
Replacing air filter	8.11					○
Check safety valve	8.12					○
Check drive	8.13				○	
Lubrication of motor	8.14					○*
General compressor servicing						○

* The motor lubrication intervals vary between 3100 and 20 000 hours depending on the type of unit. A warning on the control indicates when the motor has to be lubricated.

8.2 Preparatory activities

1. Press key ⓪ in order to switch off compressed air generation. Please wait until the compressor has been switched off after a run-on or ventilation phase. The symbol "M" for the main motor is then no longer visible in the display.
2. Switch the compressor main switch off and make certain that it cannot be turned on by mistake or intentionally (e.g. warning signs prohibiting switching).

NOTICE

Use only original spare parts!

DANGER

Hot surfaces – hot cooling fluid!!

Make certain, with appropriate precaution, that no one can be burned or scalded! Particularly note dangerous situations which can arise from the release of hot cooling fluid steam!

3. Remove the side panels of the system.
4. Make certain that the pressure net side shut-off valve is closed and cannot be opened accidentally or intentionally.
5. Make certain that when working on the cooling fluid circulation, escaping cooling fluid is collected.

8.3 Check cooling fluid level / refill cooling fluid

Preparatory activities	8.2
Concluding activities	8.16

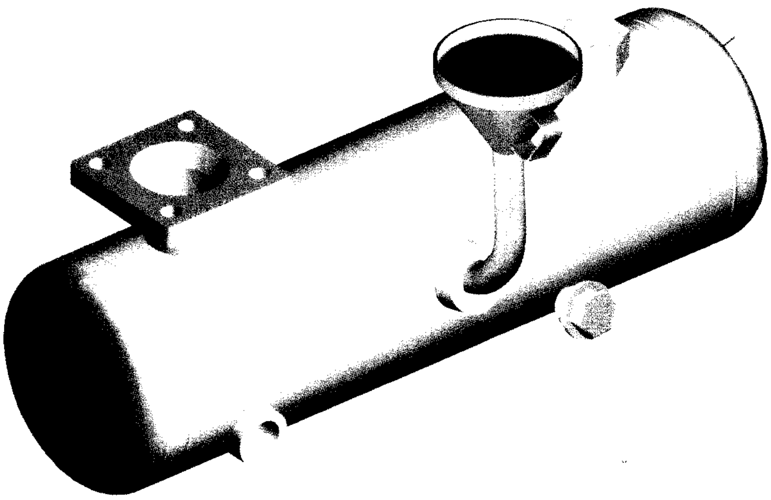
Carry out the "Preparatory activities"

Only check the cooling fluid level when the system has been turned off for a minimum of 30 minutes. This is to ensure that the cooling fluid has settled down after the running phase.

The cooling fluid level is in order if the complete sight glass is full of cooling fluid.

If the complete sight glass is not full of cooling fluid, cooling fluid must be added as follows:

1. Unscrew the filler screw. Do not misplace the gasket ring.



NOTICE

Damage to the system by using different cooling fluids!

Different cooling fluids must not be mixed. Only use original cooling fluid!

2. Use an appropriate funnel for filling. Cooling fluid can be filled up to the filling rim of the fitting.
3. Take care that the seal is correctly seated and screw the fitting screw closed.

Carry out the "Concluding activities".

8. Service

8.4 Check for leakage

Preparatory activities	8.2
Concluding activities	8.16

Carry out the “Preparatory activities”.

Check all piping and the bottom of the system for cooling fluid rests. If there is still cooling fluid in the system, the cause should be found and the cooling fluid removed.

Carry out the “Concluding activities”.

8.5 Check the compressor temperature

The compressor temperature, which can be viewed in the display, should be between 75 °C and 105 °C.

NOTICE

Too high or too low compressor temperature can lead to damages to the compressor.

8.6 Check the cooler for fouling

Preparatory activities	8.2
Concluding activities	8.16

Carry out the “Preparatory activities”.

Check the compressed air after-cooler and the cooling fluid heat exchanger from the inside and outside. If you determine any fouling, it should be removed (e.g. by compressed air blowing, where the dirt particles should be blown outside).

Carry out the “Concluding activities”.

8.7 Check for condensate

Preparatory activities	8.2
Concluding activities	8.16

The absorption capacity of water humidity in the air

- falls with increasing pressure
- rises with increasing temperature.

Sufficiently high compressor temperature guarantees that the intake air humidity does not precipitate as condensation. Frequent switching on and off of the compressor can result in the compressor not achieving the required operating temperature.

NOTICE

Condensation in the cooling fluid circulation can lead to damages to the compressor. If you have determined that there is condensation in the seperator tank, immediately get in touch with after-sales service!

Condensation damages are not covered by the warranty!

Since water is heavier than cooling fluid, after extended standstill times (e.g. on a weekend) the condensate collects in the bottom of the seperator tanks. It can be simply drained off by the discharge drain.

Carry out the following activities only when the system has been turned off at least overnight.

Carry out the “Preparatory activities”.

1. Open the drain and carefully observe the escaping liquid. Close the drain again as soon as cooling fluid appears.
2. Check the cooling fluid level according to Chapter 8.3.

Carry out the “Concluding activities”.

8.8 Cooling fluid replacement / replacing cooling fluid filter

Preparatory activities	8.2
Concluding activities	8.16

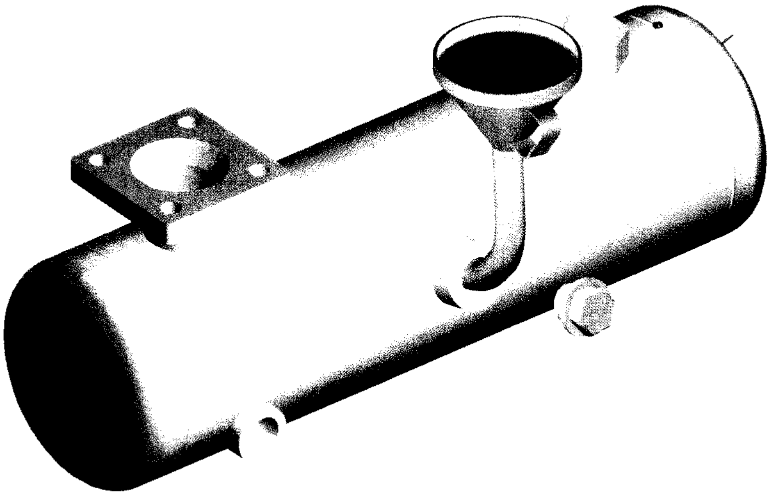
Replace the cooling fluid only when the old cooling fluid is still warm. Cold cooling fluid, because of its higher viscosity, does not flow so well.

DANGER

Hot surfaces - hot cooling fluid!

With appropriate precautions, make certain you are not burned or scalded!

Carry out the “Preparatory activities”.



1. Unscrew the filler screw. Do not misplace the gasket ring.
2. By opening the drain, allow the cooling fluid to drain into an appropriate vessel and then close the drain again.

NOTICE

Damage to the system can be caused by different cooling fluids!

Different cooling fluids must not be mixed.

3. Use an appropriate funnel for filling. Cooling fluid can be filled up to the filling rim of the fitting.
4. Take care that the seal is correctly seated and screw the fitting screw closed.
5. Loosen the cooling fluid filter with a strap wrench and remove possible seal rests from the cooling fluid filter housing.
6. Lightly oil the new seal of the cooling fluid filters.
7. Screw the new cooling fluid filter to the stop and tighten the cooling fluid filter by hand another half a revolution.
8. Test the cooling fluid filter for leakage at operating temperature .

Carry out the “Concluding activities”.

8.9 Recommended cooling fluid

Manufacturers	Oil type acc. ISO VG 46
ALUP	A LUB syn S
Anderol BV	Anderol 496 Anderol 3046
BP	Enersyn RC-S 46 Enersyn RC-S 46-8000
Castrol	Aircol SR 46
Chevron Texaco	CETUS PAO 46 SL10-046
ESSO	Compressor Oil RS 46
Fuchs	Unisyn OL 46
Mobil	Rarus SHC 1025
Shell	Corena AS 46
TOTAL/FINA/ELF	DACNIS SH 46

NOTICE

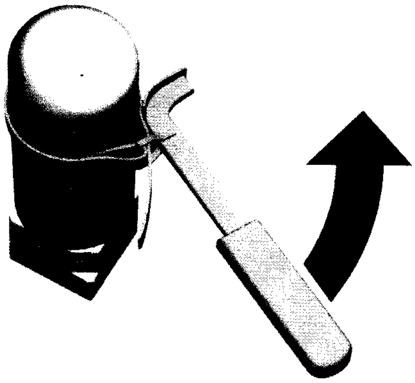
Do not mix different lubricants.

If oil type is changed, change also oil separators and oil filter.

8.10 Replacing cooling fluid separator

Preparatory activities	8.2
Concluding activities	8.16

Carry out the “Preparatory activities”.



1. Loosen the cooling fluid separator using a strap wrench. Remove possible seal rests from the cooling fluid separator housing.
2. Lightly oil the new seal(s) of the separator.
3. Screw the new cooling fluid separator in to the stop. Tighten the cooling fluid filter by hand another half a revolution.
4. Test the cooling fluid separator for leakage at operating temperature.

Carry out the “Concluding activities”.

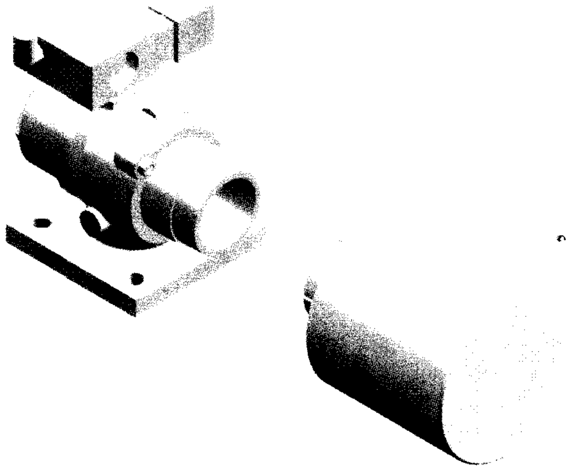
8.11 Replacing air filter

Preparatory activities	8.2
Concluding activities	8.16

Carry out the “Preparatory activities”.

NOTICE

Damage to the system by intake dust!
The system must not be operated without an air filter.



1. Remove or screw off the old air filter
2. Insert the new air filter

Carry out the “Concluding activities”.

8.12 Check safety valve

Preparatory activities	8.2
Concluding activities	8.16

Carry out the “Preparatory activities”.

1. Remove the safety valve and remove residues at the threaded connection.
2. Check the safety valve in an appropriate apparatus.
3. If it is still working correctly, add sealing tape to the connecting thread of the safety valves and screw the safety valve back in.
4. If the adequate functionality of the old safety valves can no longer be guaranteed, screw in a safety valve.

Carry out the “Concluding activities”.

8.13 Check drive

Preparatory activities	8.2
Concluding activities	8.16

Carry out the “Preparatory activities”.

The V-belt tension can be measured with the help of a belt tension tester:

1. Apply the tension tester at right angles in the centre of the free V-belt span.
2. Apply the V-belt test force according to Chapter 9.1.
3. Read off the V-belt deflection from the tension tester.

If these values do not correspond to the values given in chapter 9.1, the V-belts have to be changed by a service technician.

After having changed the V-belt, re-tension the V-belt to the maximum value after a running-in period of 30 minutes.

Carry out the “Concluding activities”.

8.14 Relubrication of the electric motor

Preparatory activities	8.2
Concluding activities	8.16

Carry out the “Preparatory activities”.

Carry out the required relubrication with a grease gun.

If there are no grease nipples on the electric motor, then it is equipped with capsulated permanently greased bearings. These motor bearings must be replaced when they are worn out.

Carry out the “Concluding activities”.

8.15 Recommended lubricant for motors

	LUBRICANT
MOBIL	MOBILTEMP SHC 100 MOBILUX 2
EXXON	UNIREX N2 OR N3 BEACON 2 OR 3
SHELL	DOLIUM GREASE R2 ALVANIA R2 OR R3
BP	ENERGREASE LS 2 ENERGREASE LS 3

NOTICE

Do not mix different lubricants.

8.16 Concluding activities

Service work acknowledged 7.1

1. Open the stopcock slowly on the pressure net side.
2. Switch the compressor main switch on.
3. Make certain that no tools or loose objects are lying on or in the system.
4. Press key (I) to switch the compressor on.
5. Check all cooling liquids and compressed air piping for leakage
6. Check all new cartridges or newly mounted pressurized components for leakage at operating temperature.
7. Finally mount the side panels of the system.
8. Confirm the maintenance work carried out by you in accordance with Chapter 5.3.5 for Air Control 1 or 5.4.5 for Air Control 3.
9. Used filter cartridges, lubricants, seals, excess condensate and employed cleaning materials should be considered hazardous waste and disposed of in an environmentally friendly way.

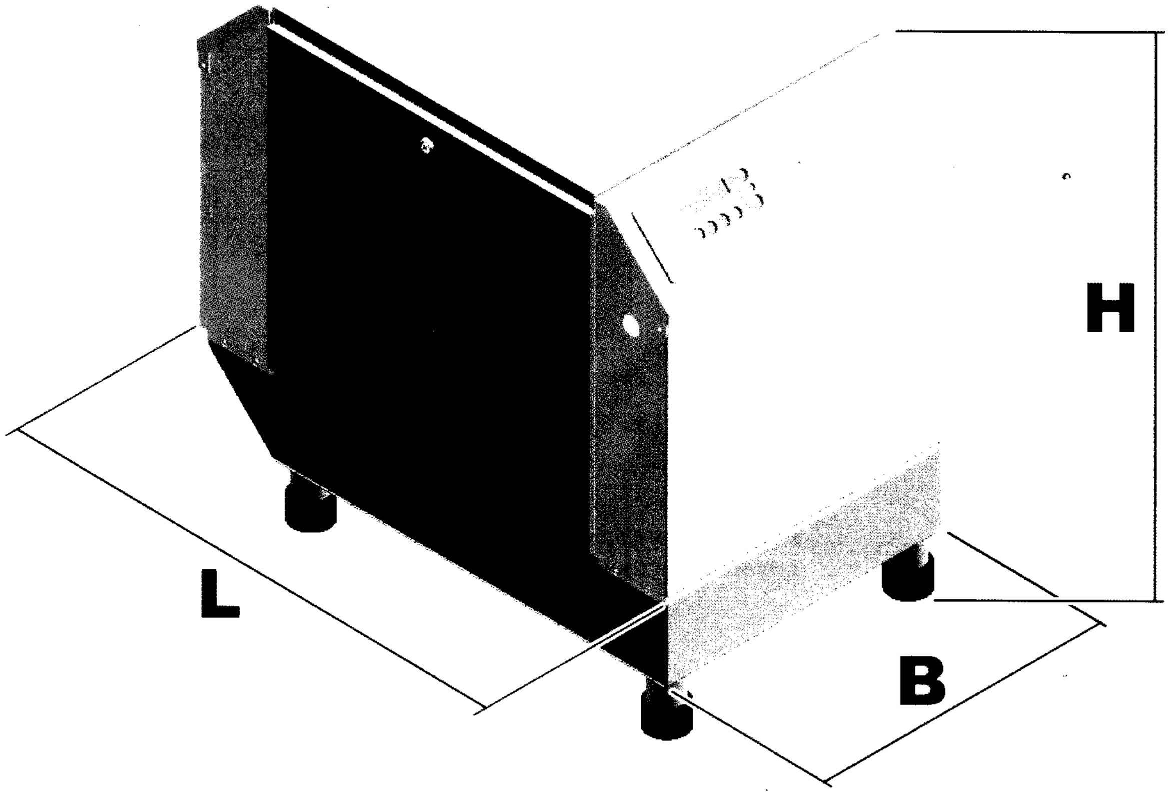
NOTICE

Damage to the system is possible!

Only acknowledge those services actually carried out!

Services not carried out degrade the service life reliability of the system. Please note that damages caused by improper usage are not covered by the guarantee!

9. Technical Data



9.1 Dimensions for connections

Compressor	L mm	B mm	H mm	Cooling fluid filling l	Compressed air connection G	Heat recovery G	V-belt tension	
							Test force N	Lowering mm
SMC 7	945	605	900	6	$^{3}/_{4}$	-	50	8 - 11
SMC 9	945	605	900	6	$^{3}/_{4}$	-	50	8 - 11
SMC 14	945	605	900	6	$^{3}/_{4}$	-	50	8 - 11
SMC 18	1.270	795	1.170	8	1	$^{1}/_{2}$	50	9 - 11
SMC 22	1.270	795	1.170	8	1	$^{1}/_{2}$	50	9 - 11
SMC 26	1.270	795	1.170	8	1	$^{1}/_{2}$	50	9 - 11
SMC 36	1.270	795	1.170	17	$1^{1}/_{2}$	$^{1}/_{2}$	50	8
SMC 44	1.270	795	1.170	17	$1^{1}/_{2}$	$^{1}/_{2}$	50	8

9.2 Data air-cooled compressors

Compressor	Weight kg	Cooling air amounts m^3/h	Room ventilation m^3/h	Intake air opening m^2	Diameter exhaust air canal m^2
SMC 7	190	1.100	1.400	0,25	0,10
SMC 9	205	1.230	1.500	0,30	0,12
SMC 14	220	1.800	2.300	0,40	0,16
SMC 18	435	3.300	4.100	0,40	0,37
SMC 22	450	3.300	4.100	0,40	0,37
SMC 26	485	3.300	4.100	0,40	0,39
SMC 36	580	5.400	6.800	0,60	0,60
SMC 44	595	5.700	7.100	0,65	0,65

9.3 Data water-cooled compressors

Compressor	Weiht	Cooling air amounts	Cooling water currant at inlet/return temperature			Connection cooling water
	kg	m^3/h	10/40 °C m^3/h	25/40 °C m^3/h	35/45 °C m^3/h	G
SMC 18	435	350	0,50	0,90	1,30	$^{3}/_{4}$
SMC 22	450	350	0,60	1,10	1,60	$^{3}/_{4}$
SMC 26	485	350	0,70	1,40	2,20	$^{3}/_{4}$
SMC 36	580	500	0,90	1,90	2,60	$^{3}/_{4}$
SMC 44	595	500	1,20	2,40	3,20	$^{3}/_{4}$

9.4 Electrical data

Compressor	Motor power 50/60Hz kW	Current at 220 V / 60 Hz			Current at 400 V / 50 Hz			Current at 440 V / 60 Hz			Current at 690 V / 60 Hz			Maximum switching frequency 1/h
		I_N A	I_M A	I_{Fuse} A gL	I_N A	I_M A	I_{Fuse} A gL	I_N A	I_M A	I_{Fuse} A gL	I_N A	I_M A	I_{Fuse} A gL	
SMC 7	5,5/6,6	19	21	25	11	12	16	11	11	16	-	-	-	55
SMC 9	7,5/9	25	28	35	15	16	20	15	15	20	-	-	-	55
SMC 14	11/13,2	36	42	50	21	23	25	21	21	25	13	-	16	40
SMC 18	15/18	48	52	63	30	32	50	30	30	50	-	-	-	30
SMC 22	18,5/22,2	58	64	80	34	38	50	34	34	50	-	-	-	25
SMC 26	22/26,4	70	77	80	40	45	63	40	40	50	-	-	-	20
SMC 36	30/36	90	99	125	57	63	80	57	57	80	-	-	-	15
SMC 44	37/44,4	119	131	160	67	73	100	67	67	80	-	-	-	12

I_N = Nominal current I_M = Maximum current I_{Fuse} = backup fuse in building

STROMME
Marine Compressors

Doc. no.: SMC18-44A60

Spare part lists and drawings

SMC 18-A - 44-A

440V/60Hz

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The serial number of the screw compressor (on the name plate at the sound isolationt bonnet) is to be indicated in any spare parts order. The required spare part number can be found in the next following views.

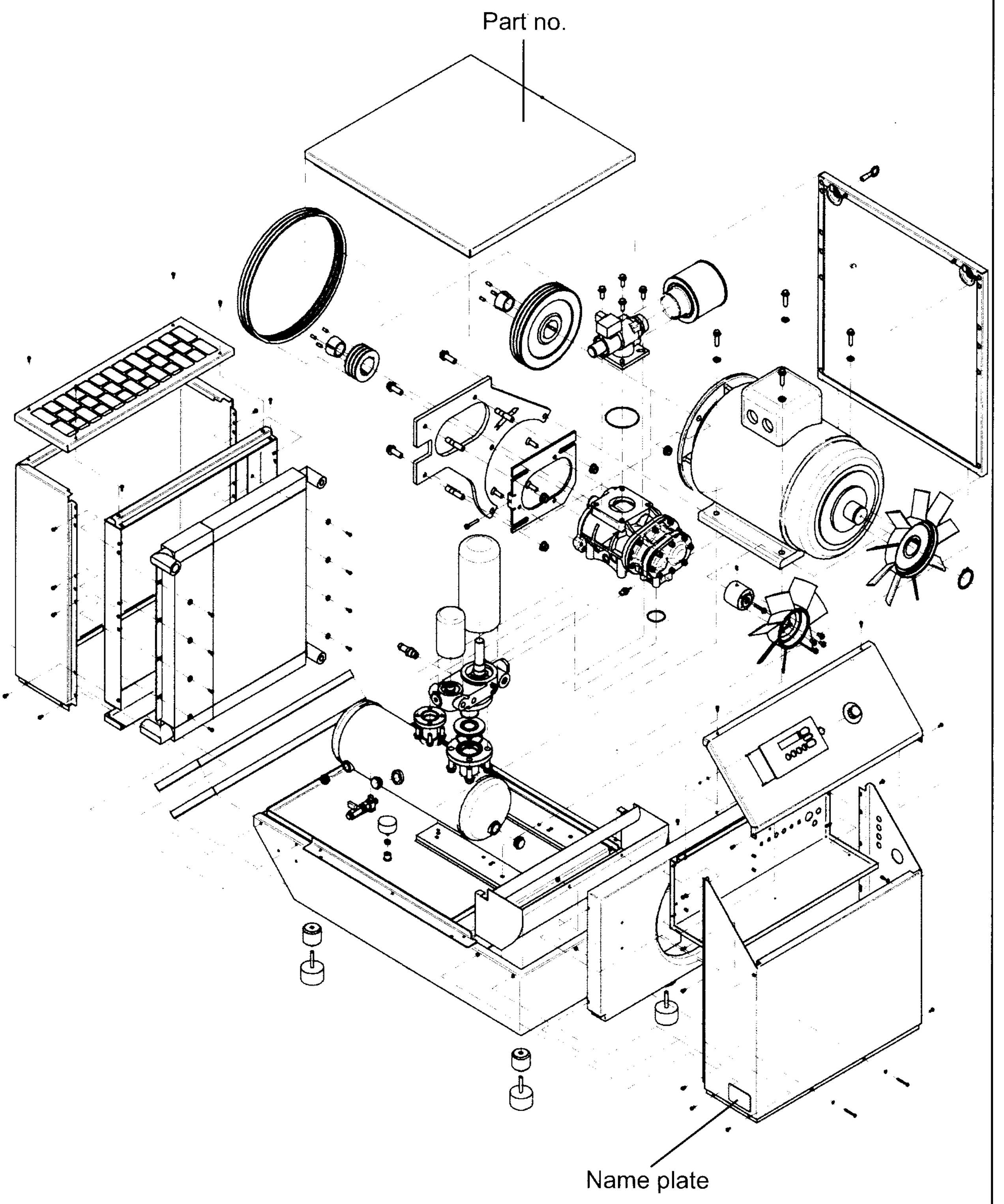
From serial number:

282 644

&

F0502735

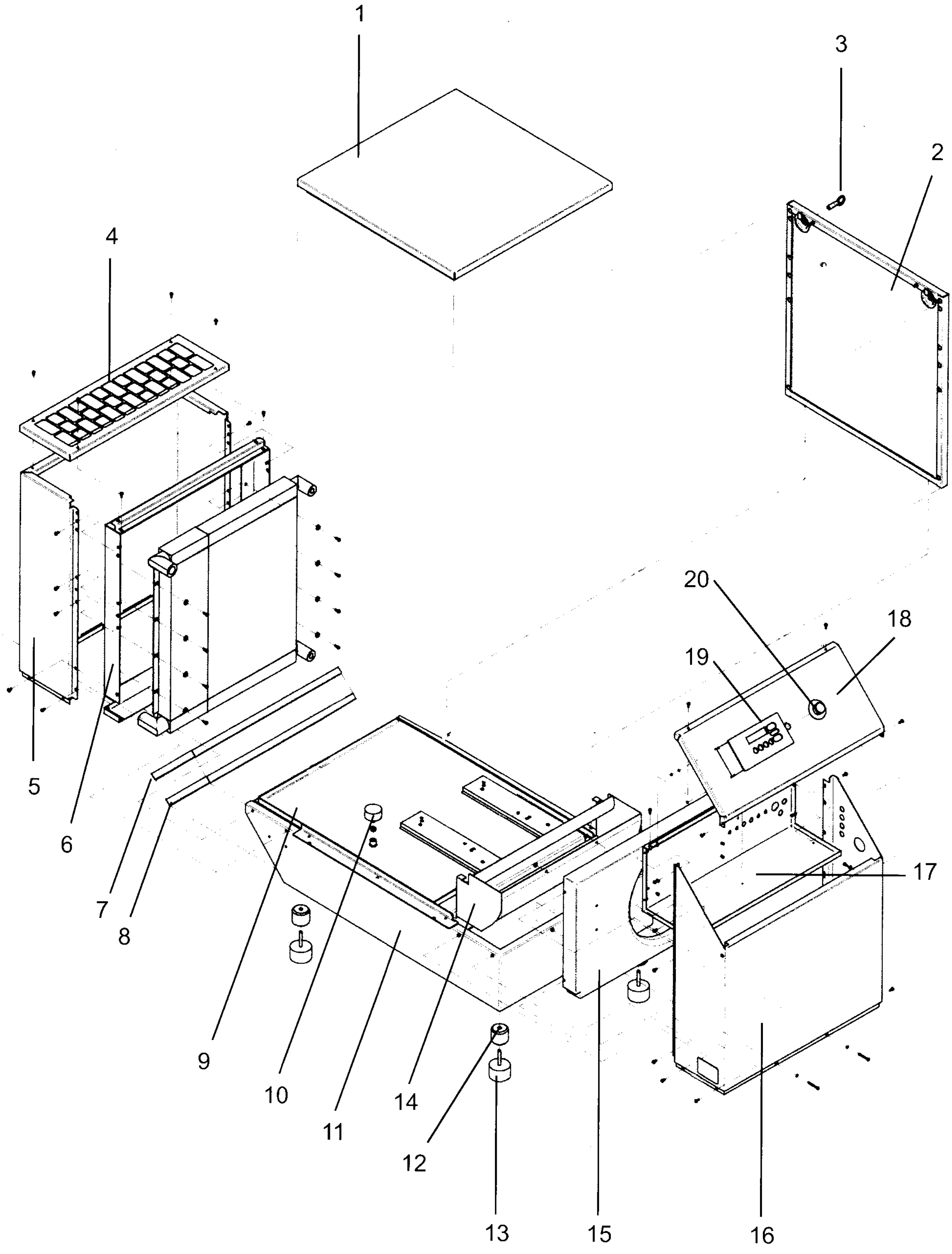
Spare parts list	**SMC18 - 44**	**440V/60Hz**	**Doc. no.: SMC18-44A60**
Assembly drawing			



Spare parts list	**SMC 18 - 44**	**440V/60Hz**	**Doc. no.: SMC18-44A60**

Pos. no.	Part no.	Qty.	Description

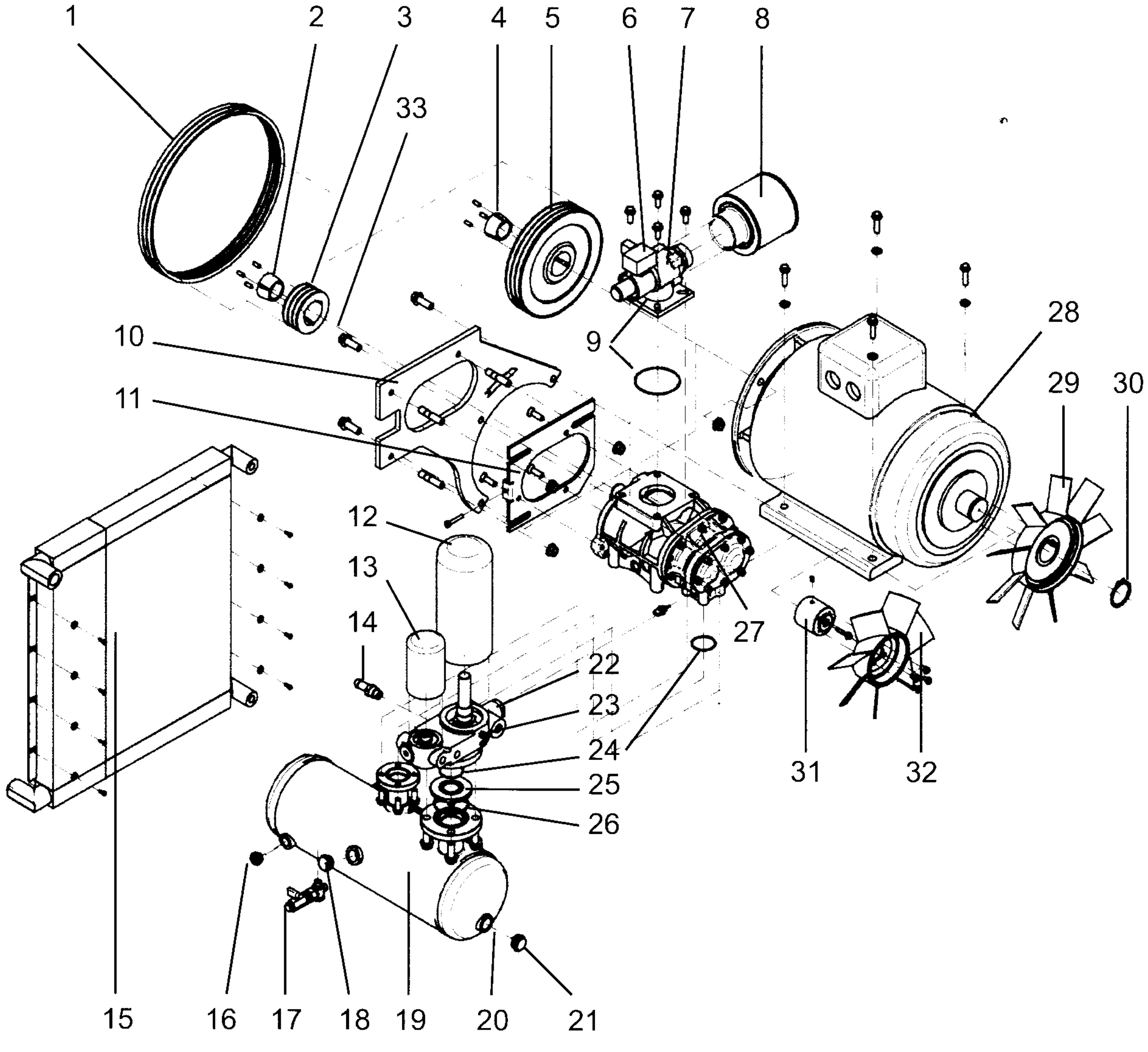
Spare parts list	**SMC18 - 44**	**440V/60Hz**	**Doc. no.: SMC18-44A60**
Construction parts			



Spare parts list	**SMC 18 - 44**	**440V/60Hz**	**Doc. no.: SMC18-44A60**
Construction parts			

Pos. no.	Part no.	Qty.	Description	
1	2010-04533	1	Sound cover hood	
2	2010-04532	2	Sound cover service board	
3	2010-03450	1	Sound cover key	
4	2010-05389	1	Exhaust air mesh	
5	2010-04527	1	Rear side board	
6	2010-05498	1	Cooler mounting plate	- SMC 18
6	2010-05498	1	Cooler mounting plate	- SMC 22
6	2010-05498	1	Cooler mounting plate	- SMC 26
6	2010-05499	1	Cooler mounting plate	- SMC 36
6	2010-05499	1	Cooler mounting plate	- SMC 44
7	2010-06940	1	Dust filter set 10pcs (option)	
8	2010-03375	1	Air intake mesh	
9	2010-04908	1	Motor base plate	
10	2010-06957	1	Oil tank vibration damper	
11	2010-05488	1	Base frame	
12	2010-05077	4	Distance ring	
13	2010-03320	4	Basie frame vibration damper	
14	2010-07057	1	Air directing plate	
15	2010-05493	1	Air intake plate - SMC 18	
15	2010-05493	1	Air intake plate - SMC 22	
15	2010-05481	1	Air intake plate - SMC 26	
15	2010-05487	1	Air intake plate - SMC 36	
15	2010-05501	1	Air intake plate - SMC 44	
16	2010-04526	1	Front side board	
17	2010-05482	1	Electric connection box	
18	2010-03391	1	Control panel	
19	2010-01690	1	Control panel, Air control 1	
19	2010-06915	1	Control panel, Air control 3 (option)	
20	2010-01653	1	Emergency stop button	

Main components



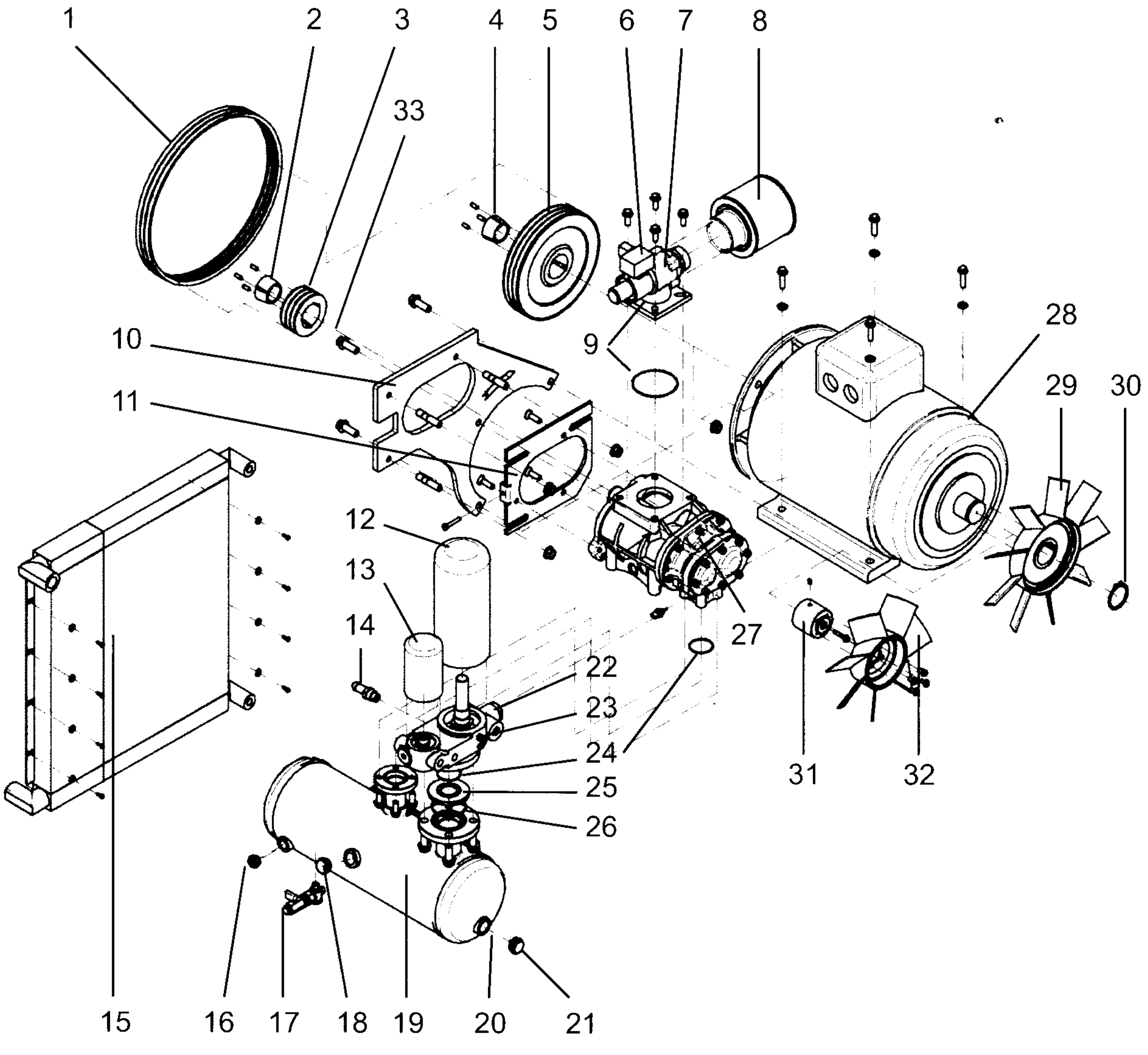
Spare parts list SMC 18 - 44 440V/60Hz

Doc. no.: SMC18-44A60

Main components

Pos. no.	Part no.	Qty.	Description		
1	2010-02185	1	V-belt set	- SMC 18	8 bar
1	2010-02236	1	V-belt set	- SMC 18	10 & 13 bar
1	2010-02228	1	V-belt set	- SMC 22	
1	2010-02185	1	V-belt set	- SMC 26	8 bar
1	2010-02205	1	V-belt set	- SMC 26	10 & 13 bar
1	2010-02259	1	V-belt set	- SMC 36	8 bar
1	2010-02228	1	V-belt set	- SMC 36	10 & 13 bar
1	2010-02239	1	V-belt set	- SMC 44	8 bar
1	2010-02182	1	V-belt set	- SMC 44	10 bar
1	2010-07127	1	V-belt set	- SMC 44	13 bar
2	2010-00951	1	Taper bush for air end pulley	- SMC 18	8 bar
2	2010-00944	1	Taper bush for air end pulley	- SMC 18	10 & 13 bar
2	2010-00944	1	Taper bush for air end pulley	- SMC 22	
2	2010-00937	1	Taper bush for air end pulley	- SMC 26	8 bar
2	2010-00944	1	Taper bush for air end pulley	- SMC 26	10 & 13 bar
2	2010-00937	1	Taper bush for air end pulley	- SMC 36	
2	2010-00948	1	Taper bush for air end pulley	- SMC 44	8 bar
2	2010-00938	1	Taper bush for air end pulley	- SMC 44	10 bar
2	2010-00948	1	Taper bush for air end pulley	- SMC 44	13 bar
3	2010-04737	1	Air end pulley	- SMC 18	8 bar
3	2010-04734	1	Air end pulley	- SMC 18	10 & 13 bar
3	2010-04735	1	Air end pulley	- SMC 22	8 bar
3	2010-04736	1	Air end pulley	- SMC 22	10 & 13 bar
3	2010-04732	1	Air end pulley	- SMC 26	8 bar
3	2010-04735	1	Air end pulley	- SMC 26	10 bar
3	2010-04736	1	Air end pulley	- SMC 26	13 bar
3	2010-04732	1	Air end pulley	- SMC 36	8 bar
3	2010-06987	1	Air end pulley	- SMC 36	10 & 13 bar
3	2010-06988	1	Air end pulley	- SMC 44	8 bar
3	2010-07095	1	Air end pulley	- SMC 44	10 bar
3	2010-07137	1	Air end pulley	- SMC 44	13 bar
4	2010-00948	1	Taper bush for motor pulley	- SMC 18	8 bar
4	2010-00943	1	Taper bush for motor pulley	- SMC 18	10 & 13 bar
4	2010-00948	1	Taper bush for motor pulley	- SMC 22	
4	2010-00949	1	Taper bush for motor pulley	- SMC 26	
4	2010-00950	1	Taper bush for motor pulley	- SMC 36	
4	2010-00953	1	Taper bush for motor pulley	- SMC 44	8 bar
4	2010-00950	1	Taper bush for motor pulley	- SMC 44	10 & 13 bar
5	2010-04737	1	Motor pulley	- SMC 18	8 bar
5	2010-04735	1	Motor pulley	- SMC 18	10 bar
5	2010-04733	1	Motor pulley	- SMC 18	13 bar
5	2010-00898	1	Motor pulley	- SMC 22	8 & 10 bar
5	2010-00897	1	Motor pulley	- SMC 22	13 bar
5	2010-00898	1	Motor pulley	- SMC 26	8 & 13 bar
5	2010-00899	1	Motor pulley	- SMC 26	10 bar
5	2010-00900	1	Motor pulley	- SMC 36	8 bar

Spare parts list	**SMC18 - 44**	**440V/60Hz**	**Doc. no.: SMC18-44A60**
Main components			



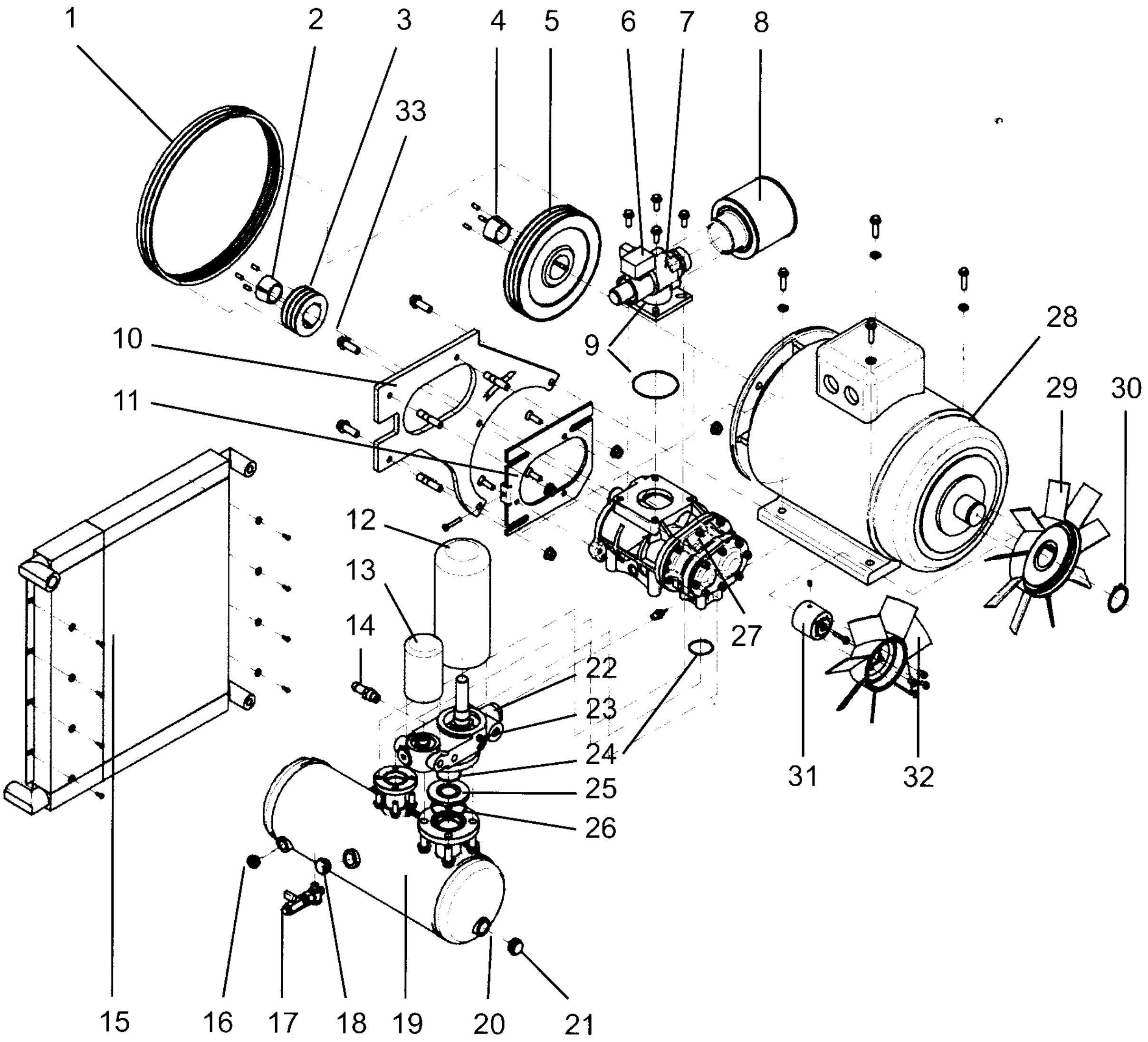
Spare parts list SMC 18 - 44 440V/60Hz

Doc. no.: SMC18-44A60

Main components

Pos. no.	Part no.	Qty.	Description		
5	2010-00899	1	Moter pulley	- SMC 36	10 bar
5	2010-00898	1	Motor pulley	- SMC 36	13 bar
5	2010-07096	1	Motor pulley	- SMC 44	8 bar
5	2010-04756	1	Motor pulley	- SMC 44	10 bar
5	2010-04757	1	Motor pulley	- SMC 44	13 bar
6	2010-03706	1	Service kit for discharge valve		
7	2010-05191	1	Suction control valve		
8	2010-03010	1	Air filter cartridge		
8	2010-06936	1	Heavy duty air filter cartridge (option)		
9	2010-03707	1	Service kit for suction control valve		
10	2010-07059	1	Front plate	- SMC 18	
10	2010-07059	1	Front plate	- SMC 22	
10	2010-07059	1	Front plate	- SMC 26	
10	2010-07060	1	Front plate	- SMC 36	
10	2010-07064	1	Front plate	- SMC 44	
11	2010-07058	1	Air end plate	- SMC 18	
11	2010-07058	1	Air end plate	- SMC 22	
11	2010-07058	1	Air end plate	- SMC 26	
11	2010-07058	1	Air end plate	- SMC 36	
11	2010-07063	1	Air end plate	- SMC 44	
12	2010-03028	1	Oil separator cartridge	- SMC 18	
12	2010-03028	1	Oil separator cartridge	- SMC 22	
12	2010-03028	1	Oil separator cartridge	- SMC 26	
12	2010-03036	1	Oil separator cartridge	- SMC 36	
12	2010-03036	1	Oil separator cartridge	- SMC 44	
13	2010-02942	1	Oil filter cartridge		
14	2010-01973	1	Safety valve	- SMC 18	
14	2010-01973	1	Safety valve	- SMC 22	
14	2010-01973	1	Safety valve	- SMC 26	
14	2010-01977	1	Safety valve	- SMC 36	
14	2010-01977	1	Safety valve	- SMC 44	
15	2010-00994	1	Oil / air cooler	- SMC 18	
15	2010-00994	1	Oil / air cooler	- SMC 22	
15	2010-00994	1	Oil / air cooler	- SMC 26	
15	2010-01006	1	Oil / air cooler	- SMC 36	
15	2010-01006	1	Oil / air cooler	- SMC 44	
16	2010-02530	1	Oil level glas		
17	2010-06927	1	Oil drain valve set		
18	2010-06928	1	Oil filler neck plug		
19	2010-07133	1	Oil tank	- SMC 18	
19	2010-07133	1	Oil tank	- SMC 22	
19	2010-07133	1	Oil tank	- SMC 26	
19	2010-07132	1	Oil tank	- SMC 36	
19	2010-07131	1	Oil tank	- SMC 44	
20	2010-02686	1	Auxilliary heating seal ring		
20	2010-01818	1	Auxilliary heating (option)		

Spare parts list	**SMC18 - 44**	**440V/60Hz**	**Doc. no.: SMC18-44A60**
Main components			



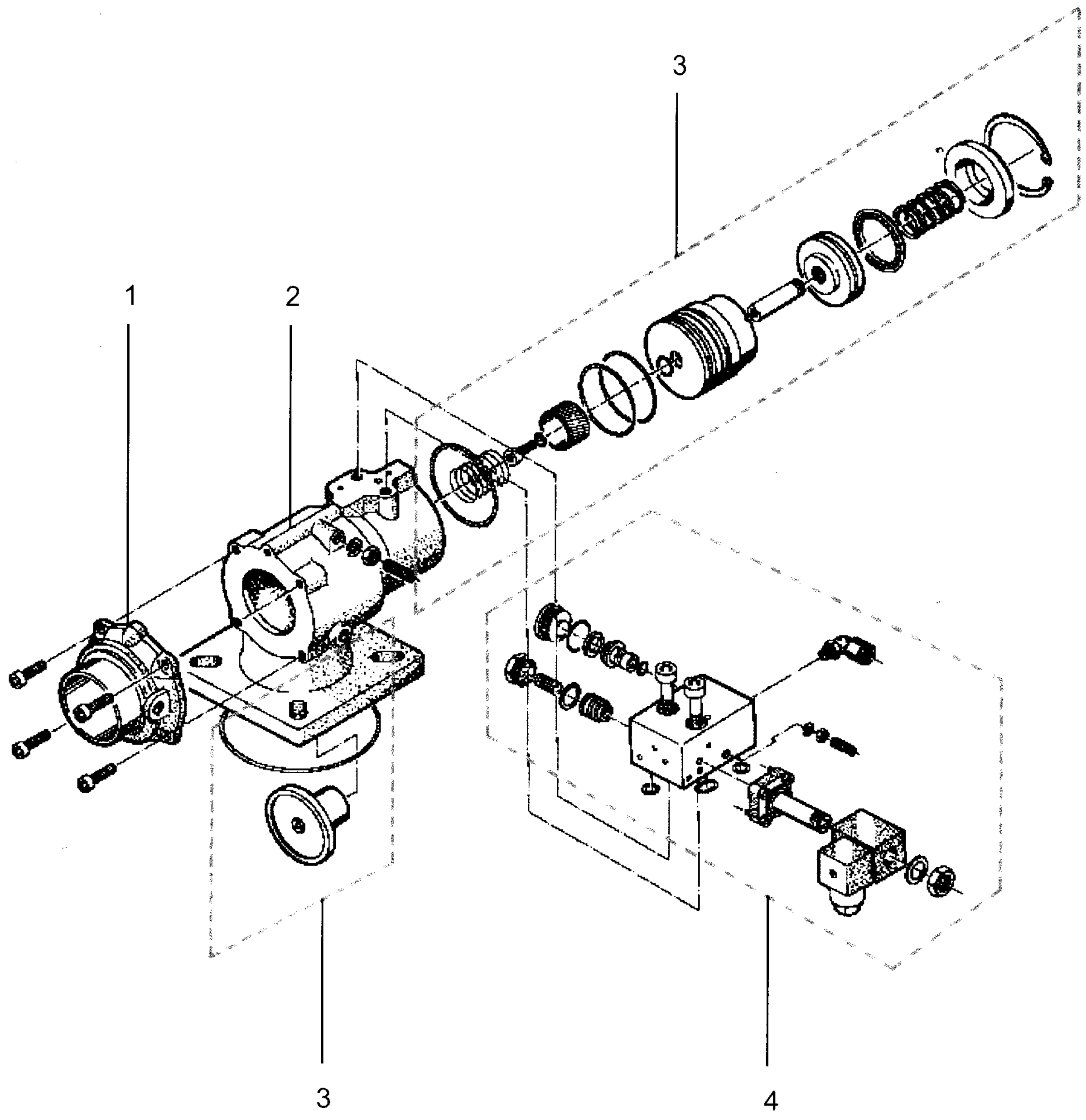
Spare parts list SMC 18 - 44 440V/60Hz

Doc. no.: SMC18-44A60

Main components

Pos. no.	Part no.	Qty.	Description
20	2010-06916	1	Auxilliary heating 220 V (option)
21	2010-02575	1	Auxilliary heating blind plug
22	2010-07135	1	Oil filter block without filter cartridges - SMC 18
22	2010-07135	1	Oil filter block without filter cartridges - SMC 22
22	2010-07135	1	Oil filter block without filter cartridges - SMC 26
22	2010-07136	1	Oil filter block without filter cartridges - SMC 36
22	2010-07136	1	Oil filter block without filter cartridges - SMC 44
23	2010-03147	1	Non-return valve for oil return line
24	2010-02739	2	O-ring oil filter block / oil tank - SMC 44
25	2010-06930	1	Adaptor for oil filter block - SMC 44
26	2010-02794	1	O-ring for oil tank - SMC 44
27	2010-00793	1	Compressor air end - SMC 18
27	2010-00793	1	Compressor air end - SMC 22
27	2010-00793	1	Compressor air end - SMC 26
27	2010-00793	1	Compressor air end - SMC 36
27	2010-04603	1	Compressor air end - SMC 44
28	2010-01128	1	Electric motor - SMC 18
28	2010-01126	1	Electric motor - SMC 22
28	2010-01129	1	Electric motor - SMC 26
28	2010-01125	1	Electric motor - SMC 36
28	2010-01130	1	Electric motor - SMC 44
29	2010-03398	1	Ventilator fan - SMC 36
29	2010-03410	1	Ventilator fan - SMC 44
30	2010-06925	1	Safety ring for ventilator fan - SMC 36
30	2010-06925	1	Safety ring for ventilator fan - SMC 44
31	2010-07130	1	Ventilator hub - SMC 18
31	2010-07130	1	Ventilator hub - SMC 22
31	2010-04692	1	Ventilator hub - SMC 26
32	2010-03409	1	Ventilator fan - SMC 18
32	2010-03409	1	Ventilator fan - SMC 22
32	2010-03409	1	Ventilator fan - SMC 26
33	2010-07134	1	Distance bush - SMC 44

Spare parts list	**SMC18 - 44**	**440V/60Hz**	**Doc. no.: SMC18-44A60**
Suction control			



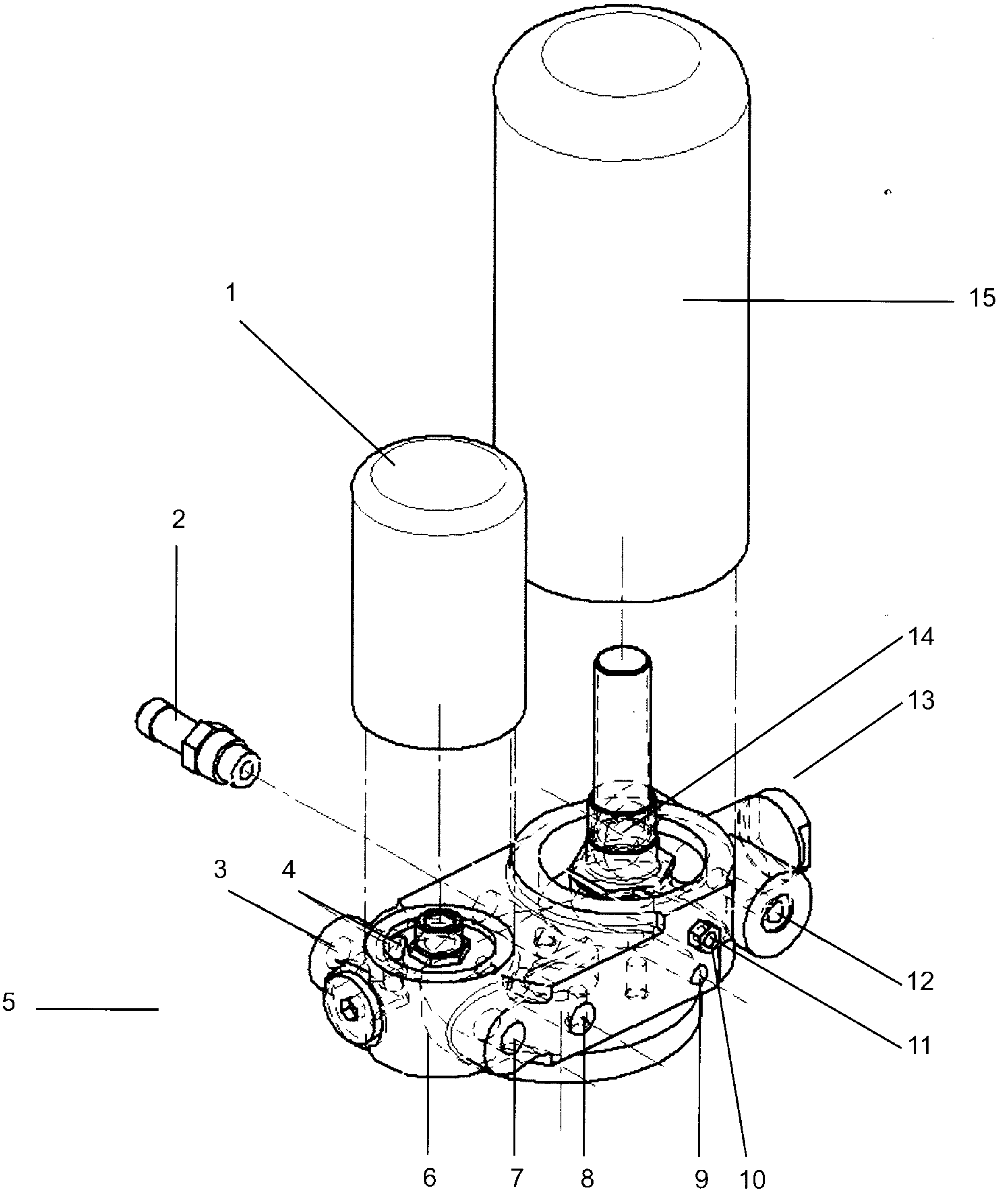
Spare parts list SMC 18 - 44 440V/60Hz

Doc. no.: SMC18-44A60

Suction control

Pos. no.	Part no.	Qty.	Description
1	2010-06949	1	Suction control valve connecting piece
2	2010-06950	1	Suction control valve housing
3	2010-03707	1	Service kit for suction control valve
4	2010-03706	1	Service kit for discharge valve

Spare parts list SMC18 - 44 440V/60Hz	**Doc. no.: SMC18-44A60**
Oil filter block and flexibles lines connection	



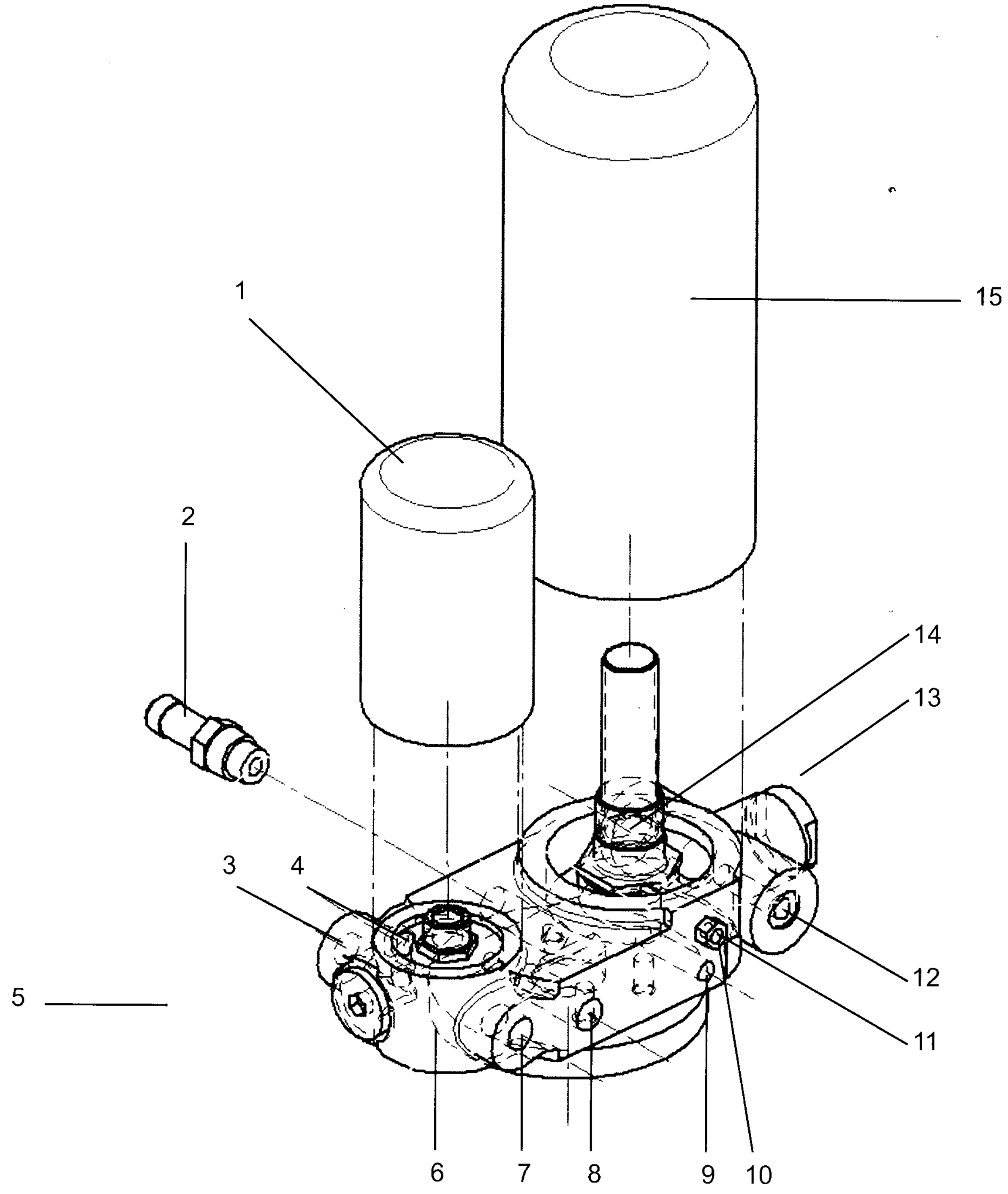
Spare parts list SMC 18 - 44 440V/60Hz

Doc. no.: SMC18-44A60

Oil filter block and flexibles lines connection

Pos. no.	Part no.	Qty.	Description
1	2010-02942	1	Oil filter cartridge
2	2010-01973	1	Safety valve - SMC 18
2	2010-01973	1	Safety valve - SMC 22
2	2010-01973	1	Safety valve - SMC 26
2	2010-01977	1	Safety valve - SMC 36
2	2010-01977	1	Safety valve - SMC 44
3	2010-07013	1	Oil line from cooler to oil filter block - SMC 18
3	2010-07013	1	Oil line from cooler to oil filter block - SMC 22
3	2010-07013	1	Oil line from cooler to oil filter block - SMC 26
3	2010-07012	1	Oil line from cooler to oil filter block - SMC 36
3	2010-07012	1	Oil line from cooler to oil filter block - SMC 44
4	2010-07020	1	Oil line from oil filter to cooler - SMC 18
4	2010-07020	1	Oil line from oil filter to cooler - SMC 22
4	2010-07020	1	Oil line from oil filter to cooler - SMC 26
4	2010-07012	1	Oil line from oil filter to cooler - SMC 36
4	2010-07012	1	Oil line from oil filter to cooler - SMC 44
5	2010-07129	1	Service kit for temperature control valve
6	2010-06996	1	Oil filter block wo/filter cartridges - SMC 18
6	2010-06996	1	Oil filter block wo/filter cartridges - SMC 22
6	2010-06996	1	Oil filter block wo/filter cartridges - SMC 26
6	2010-06998	1	Oil filter block wo/filter cartridges - SMC 36
6	2010-06998	1	Oil filter block wo/filter cartridges - SMC 44
7	2010-07002	1	Oil line from oil filter block to air end
8	2010-07011	1	Oil line from oil tank to oil filter block
9	2010-03126	1	Discharge line
10	2010-06933	1	Oil return nozzle - SMC 18
10	2010-06933	1	Oil return nozzle - SMC 22
10	2010-06933	1	Oil return nozzle - SMC 26
10	2010-06934	1	Oil return nozzle - SMC 36
10	2010-06934	1	Oil return nozzle - SMC 44
11	2010-03147	1	Non-return valve for oil return line
11	2010-06946	1	Oil return line ND 6 from oil filter block to compressor air end - SMC 18
11	2010-06946	1	Oil return line ND 6 from oil filter block to compressor air end - SMC 22
11	2010-06946	1	Oil return line ND 6 from oil filter block to compressor air end - SMC 26
11	2010-06946	1	Oil return line ND 6 from oil filter block to compressor air end - SMC 36
11	2010-06945	1	Oil return line ND 6 from oil filter block to compressor air end - SMC 44
12	2010-03096	1	Pressure sensor line
13	2010-06966	1	Service kit for oil filter block
14	2010-03178	1	Compressed air line from oil filter block to cooler
15	2010-03028	1	Oil separator cartridge - SMC 18
15	2010-03028	1	Oil separator cartridge - SMC 22

Spare parts list	**SMC18 - 44**	**440V/60Hz**	**Doc. no.: SMC18-44A60**
Oil filter block and flexibles lines connection			



Spare parts list	SMC 18 - 44	440V/60Hz	Doc. no.: SMC18-44A60

Oil filter block and flexibles lines connection

Pos. no.	Part no.	Qty.	Description	
15	2010-03028	1	Oil separator cartridge	- SMC 26
15	2010-03036	1	Oil separator cartridge	- SMC 36
15	2010-03036	1	Oil separator cartridge	- SMC 44

Deckblatt / Cover Page

Anlage / Compound :

SMC 7 - SMC 44

Schutzart: Protection:	IP54
VDE:	0113

Verdrahtung/ Wiring :

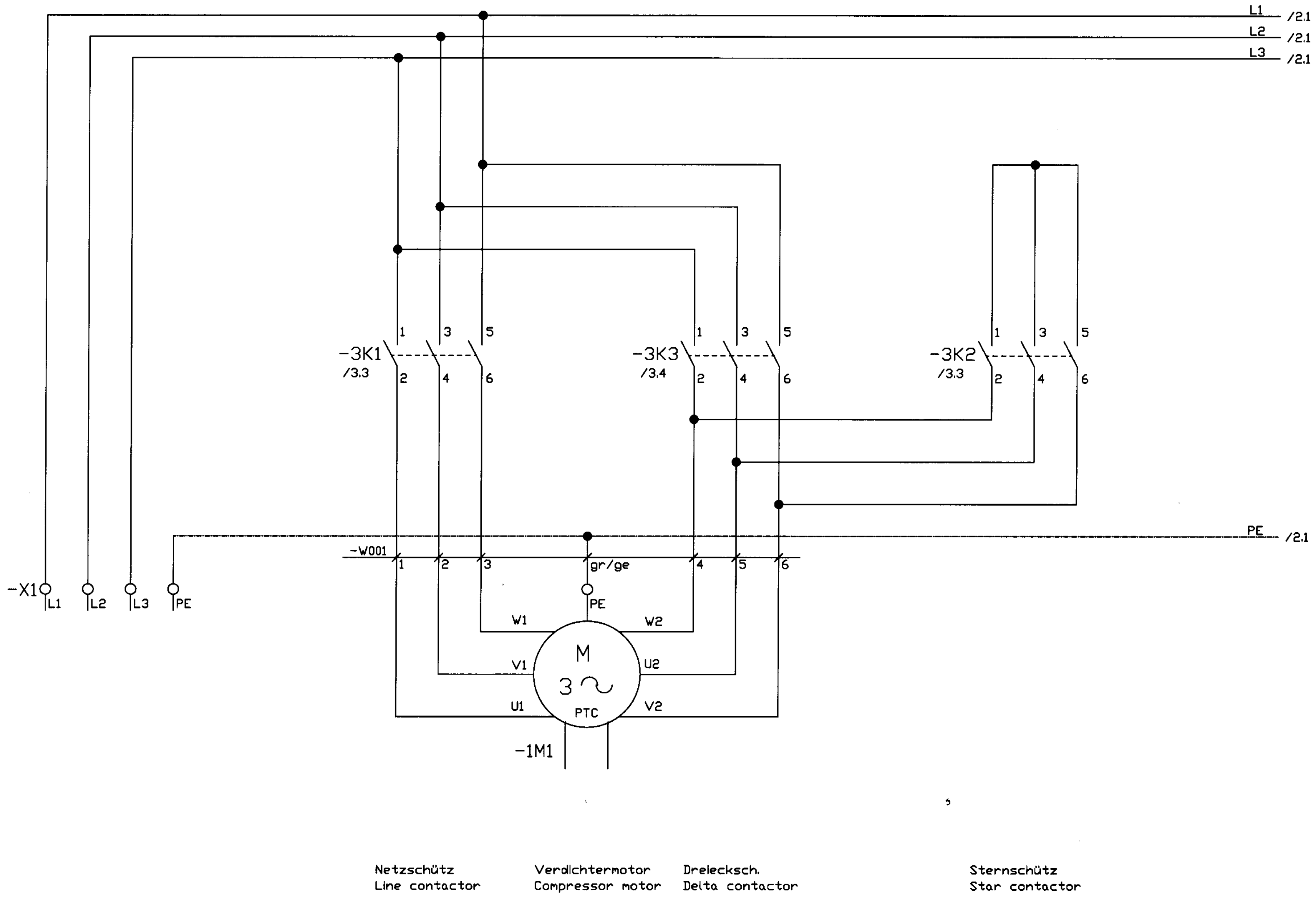
Hauptstrom / Main current :	schwarz / black
Steuerspannung / Control voltage :	rot / red
Steuerspannung / Control voltage :	dunkelblau / dark blue
Nulleiter / Neutral conducter :	hellblau / light blue
Schutzleiter / Protective conductor :	grün-gelb / green-yellow

Nennspannung / Rated voltage :	440V
Steuerspannung / Control voltage :	230V
Frequenz / Frequency :	60Hz

Leistungsaufnahme / Rated power :
(Vorsicherung / Back-up fuse)

4-5,5kW	(16A)
7,5kW	(20A)
11kW	(25A)
15-18,5kW	(50A)
22kW	(63A)
30kW	(80A)
37kW	(100A)

				Date	06.09.95	Projekt: SMC 7 - 44		STROMME Marine Compressors	Cover page	137.00221- Stromme-00	Page 0 of 7 pages
				Bearb.							
				Gepr.							
Zustand	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.			



				Date	06.09.95
				Bearb.	GKL
	Phasenf.	981117	GKL	Gepr.	GKL
Zustand	·rung	Datum	Name	Norm	

Projekt: SMC 7 - 44

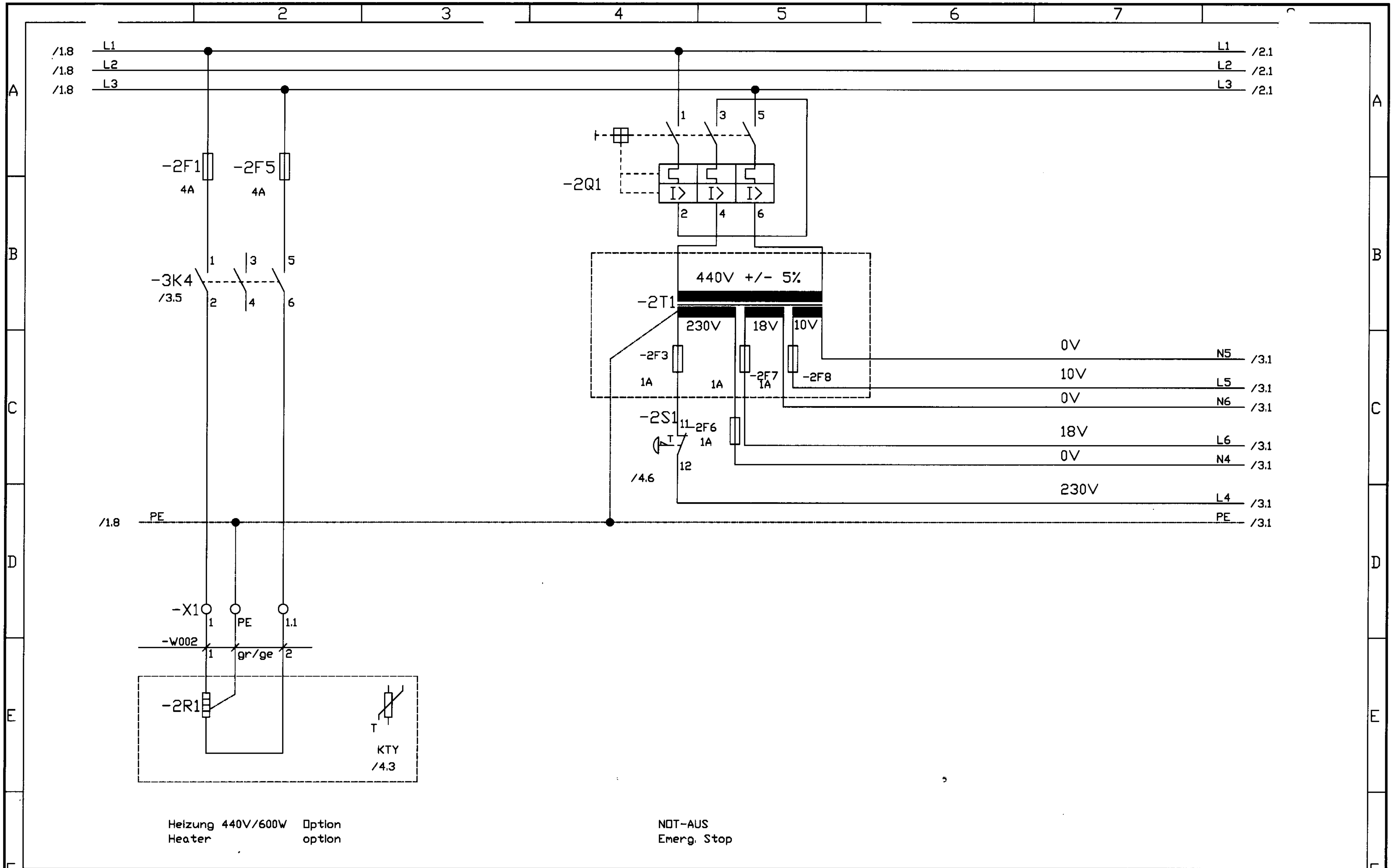
Urspr. · Ers. f. 9429 · Ers. d. 9429

STROMME
Marine Compressors

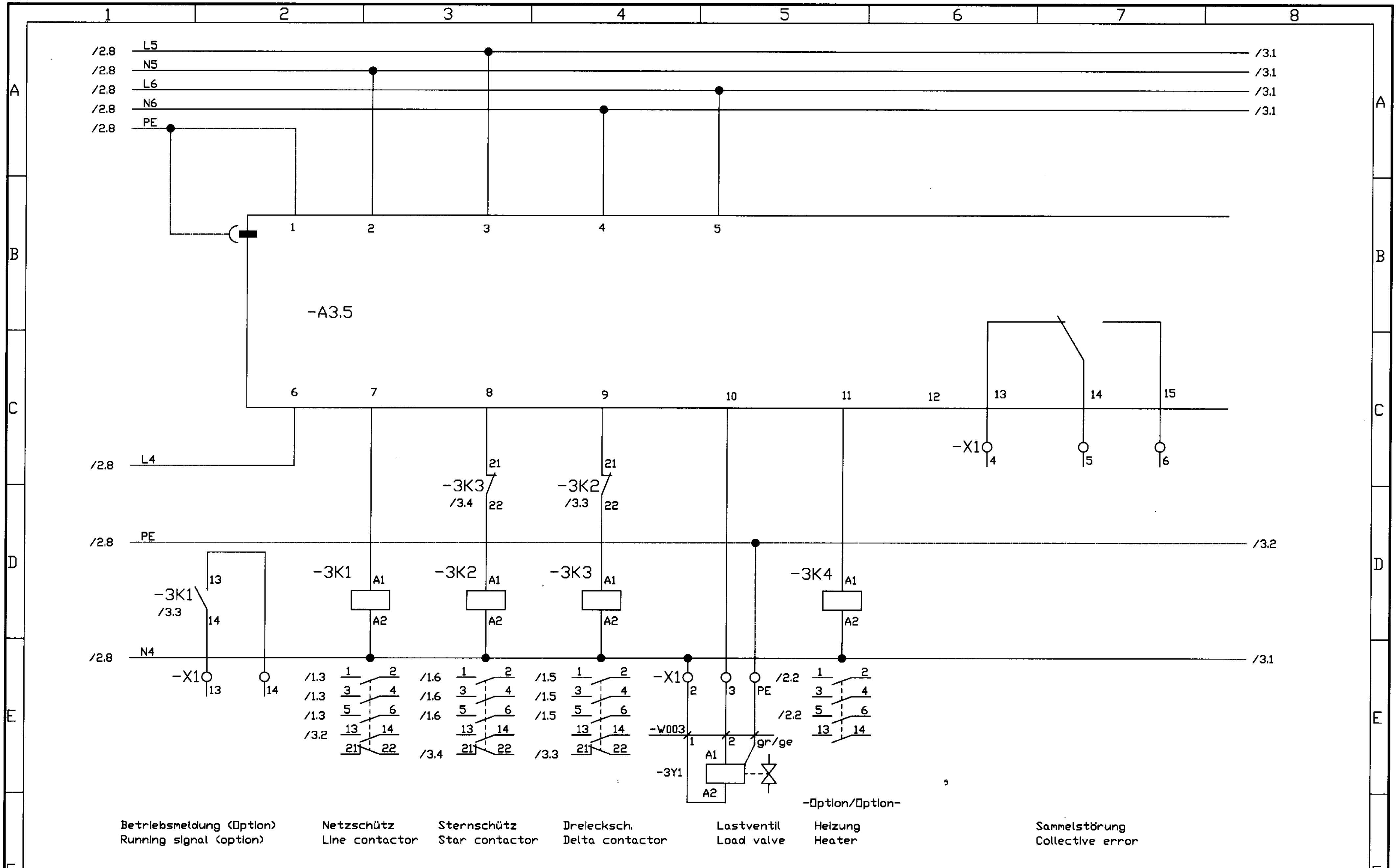
Circuit diagram

137.00221-
Stromme-00

Page 1
7 pages



Zustand	Änderung	Datum	Name						
				Date	06.09.95	Projekt: SMC 7 - 44	STROMME Marine Compressors	Circuit diagram	
	3F5/3F6	981118	GKL	Bearb.	GKL				
	Heizung	970408	GKL	Gepr.	GKL				137.00221- Stromme-00 / Page 2
				Norm		Urspr. 9429 / Ers. f. 9429	Ers. d.		of 7 pages



				Date	06.09.95
		981118	GKL	Bearb.	GKL
	3F5/6 entf.	9700408	GKL	Gepr.	GKL
Zustand	ɜrung	Datum	Name	Norm	

Projekt: SMC 7 - 44

Urspr.

Ers. f. 9429

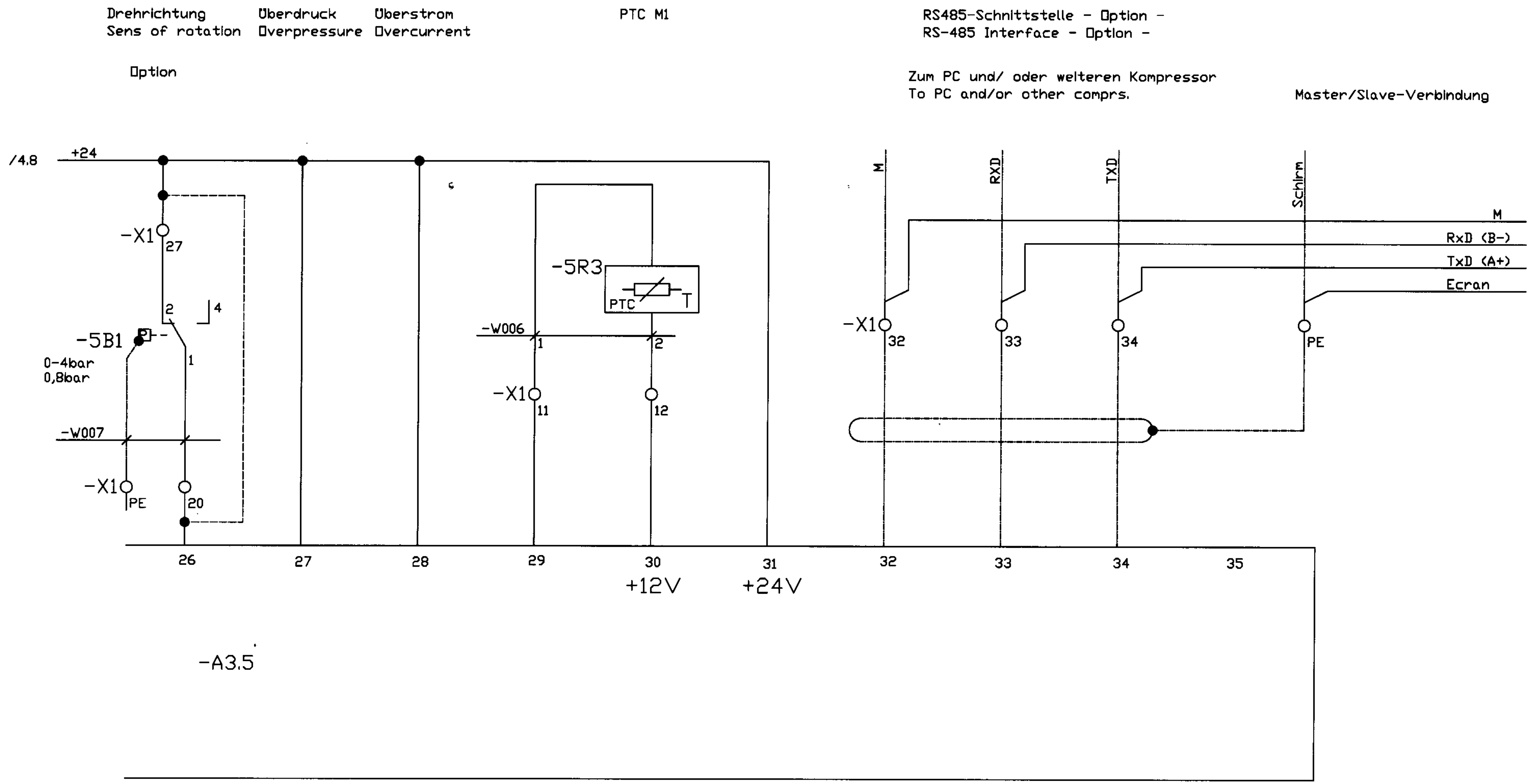
STROMME
Marine Compressors

Ers. d.

Circuit diagram

137.00221-
Stromme-00

Page 3
7 pages



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	SST	981117	GKL	Bearb.	GKL
	Brücke 26	951019	GKL	Gepr.	GKL
Zustand	rung	Datum	Name	Norm	

Projekt: SMC 7 - 44

Urspr. 9

Ers. f. 9429

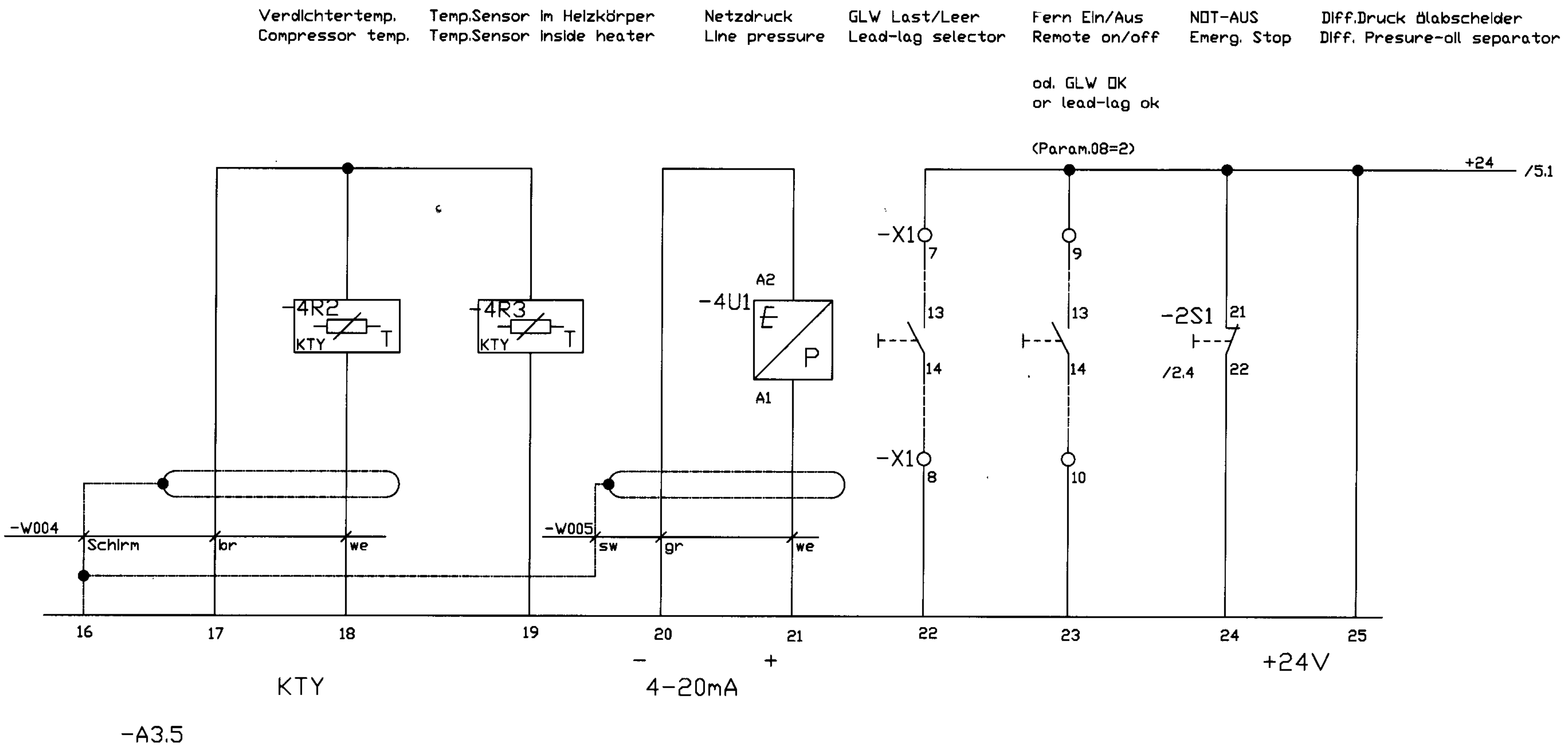
STROMME
Marine Compressors

Ers. d.

Circuit diagram

137.00221-
Stromme-00

Page 5
7 pages



				Date	06.09.95
	GLW OK	970625	GKL	Bearb.	GKL
	-4U1	970408	GKL	Gepr.	GKL
Zustand	Änderung	Datum	Name	Norm	

Projekt: SMC 7 -44

Urspr. 9429

Ers. f. 9429

STROMME
Marine Compressors

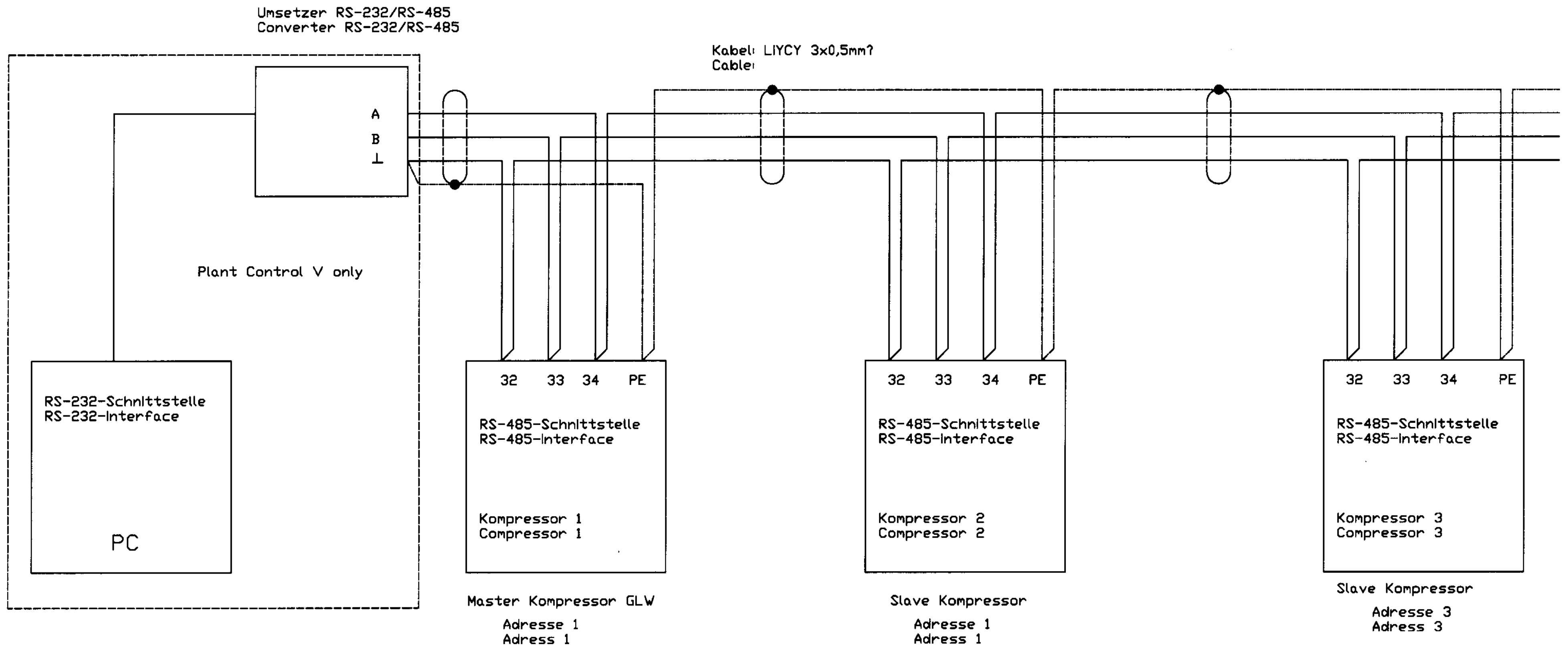
Ers. d.

Circuit diagram

137.00221-
Stromme-00

Page 4
of 7 pages

Verkabelug GLW und Plant Control
Cabling of lead-lag control and Plant Control



(s. auch Seite 5)
(ref. also to page 5)

				Date	06.09.95
	SST	981117	GKL	Bearb.	GKL
	Brücke 26	951019	GKL	Gepr.	GKL
Zustand	Änderung	Datum	Name	Norm	

Projekt: SMC 7 - 44

Urspr. 9429 | Ers. f. 9429 | Ers. d.

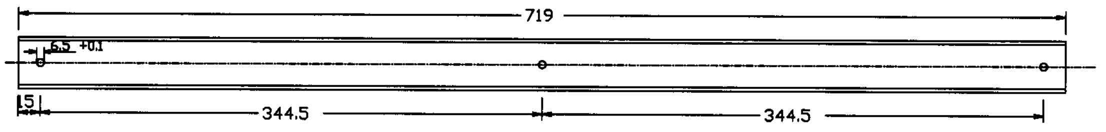
STROMME
Marine Compressors

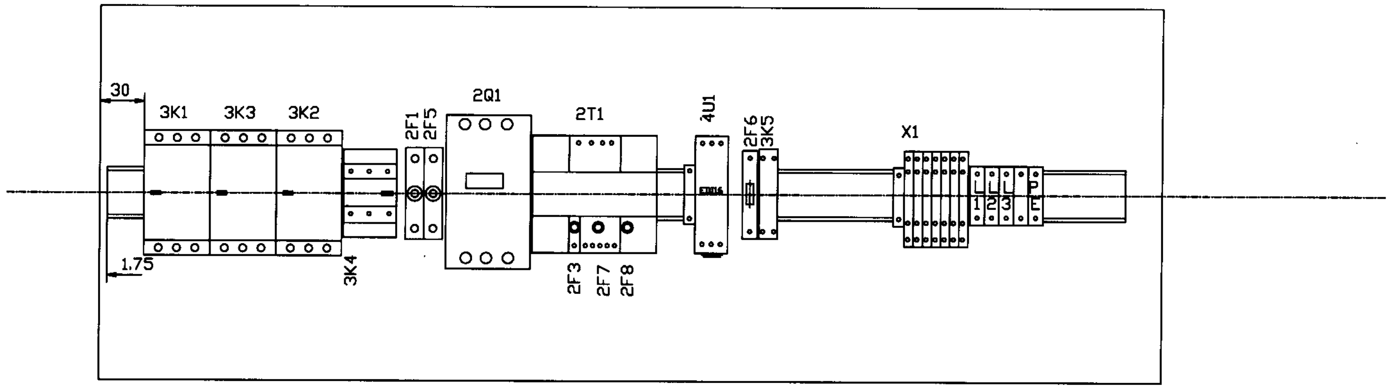
cabling ser.
Interface
master/slave

137.00221-
Stromme-00

Page 6
of 7 pages

Tragschiene TS35 719mm lang
Mounting rail TS35 719mm long





				Date	03.10.95	Projekt: SMC 7 - 44	STROMME Marine Compressors	construction	
				Bearb.	GKL				
		970408	GKL	Gepr.	GKL				137.00221- Stromme-00
Zustand	erung	Datum	Name	Norm		Urspr. 9 / Ers. f. 9429	Ers. d.		Page 7 7 pages

cable list: 13700221

No.	field appliance	cable description	cable typ		quant. of strands	external description
1	-1M1	-W001	Ölflex 7x2,5 1450mm	SMC 7 - 14	7	Netzschütz / Line contactor 3K1
						Dreiecksch. / Delta contactor 3K3
1	-1M1	-W001	Ölflex 7x4 2000mm	SMC 18 - 22	7	Netzschütz / Line contactor 3K1
						Dreiecksch. / Delta contactor 3K3
1	-1M1	-W001	Ölflex 7x6 2000mm	SMC 26	7	Netzschütz / Line contactor 3K1
						Dreiecksch. / Delta contactor 3K3
1	-1M1	-W001	Ölflex 7x10 2000mm	SMC 36	7	Netzschütz / Line contactor 3K1
						Dreiecksch. / Delta contactor 3K3
1	-1M1	-W001	Ölflex 2x7x4 2000mm	SMC 44	7	Netzschütz / Line contactor 3K1
						Dreiecksch. / Delta contactor 3K3
2	-2R1	-W002	SINF-JB 3x1,5+2x1 1150mm		3	Heizung / Heater 600W KTY
3	-3Y1	-W003	Ölflex 3x1,5 2000mm		3	Lastventil / Load valve 3Y1
4	-A3.5	-W004	LIYCY 2x0,5 1400mm		2	Verdichtertemp. / Compressor temp. KTY 4R2
5	-A3.5	-W005	LIYCY 2x0,5 2700mm		2	Netzdruck / Line pressure 4U1
6	-A3.5	-W006	Ölflex 2x0,75 1200mm		2	PTC Motor 1M1
8	-5B1	-W008	Ölflex 3x1mm? 2000mm		3	Druckschalter / Pressure switch -5B1
9	-A3.5	-SST	LIYCY 3x0,5mm? 1200mm		3	Schnittstelle / Interface -RS-485

				Date	08.04.97	Projekt: SMC 7 - 44	STROMME Marine Compressors	cable list	
				Bearb.	GKL				
	Längen	961114	GKL	Gepr.	GKL				137.00221- Stromme-00 / Page 1
Zustand	Änderung	Datum	Name	Norm		Urspr. / Ers. f.	Ers. d.		of 1 pages

	Kabelbezeichnung extern		terminal strip: -X1								Seite 1
						Ziel extern				Ziel intern	
Funktionstext			-SST LIYCY 3x0,5mm?	-W006 Ölfl. 3x1,5	-W003 Ölflex 3x1,5	-W002 SINF-JB 3x1,5	Bezeichnung	Anschluß	Klemmennummer	Brücken	Bezeichnung	Anschluß	Blatt/Pfad
Heizung / Heater						1	-2R1	???	1				2.2
Heizung / Heater						gr/ge			PE	●	-2T1	???	2.2
Heizung / Heater						2	-2R1	???	1.1				2.2
Magnetv. / Solenoid v.					1		-3Y1	A2	2	●	-3K3	A2	3.4
Magnetv. / Solenoid v.					2		-3Y1	A1	3				3.5
Magnetv. / Solenoid v..					gr/ge				PE	●			3.5
Sammst. / Collective error									4		-A3.5	13	3.6
Sammst. / Collective error									5		-A3.5	14	3.7
Sammst. / Collective error									6		-A3.5	15	3.7
GLW / Leed-lag selector								13	7	●	-2S1	21	4.5
GLW / Leed-lag selector								14	8		-A3.5	22	4.5
Fern Ein-Aus / Remote on-off								13	9	●	-2S1	21	4.6
Fern Ein-Aus / Remote on-off								14	10		-A3.5	23	4.6
PTC				1					11		-A3.5	29	5.3
PTC				2					12		-A3.5	30	5.4
Betriebsm. / Running sig.									13		-3K1	13	3.2
Betriebsm. / Running sig.									14		-3K1	14	3.2
Einsp. / Supply									U		-3K1	1	1.1
Einsp. / Supply									V		-3K1	3	1.1
Einsp. / Supply									W		-3K1	5	1.2
Einsp. / Supply									PE	●	-A3.5	1	1.2
									PE	●			1.4
Drucksch. / Pressure switch							-5B1	1	20		-A3.5	26	5.1
Drucksch. / Pressure switch							-5B1	2	27		-A3.5	31	5.2
Drucksch. / Pressure switch							-5B1	PE	PE	●			5.2
RS-485 M			we						32		-A3.5	32	5.5
RS-485 RXD			gr						33		-A3.5	33	5.6
RS-485 TXD			br						34		-A3.5	34	5.6
									PE	●	Schirm	Geh.	5.7

Zustand	Än.	..ng	Datum	Name	Norm
			970409	GKL	Gepr. GKL
					Bearb. GKL
					Date 14.11.96

Projekt: SMC 7 - 44

Urspr.

Ers. f.

STROMME
Marine Compressors

Ers. d.

termir ' strip

137.00221-
Stromme-00

'age 1
of 1 pages

Material List

No.	Quant.	Part No.	Art.No.	Name	Maker		Ref.
1	1	2010-07072		Air-Control 1 for Stromme			-A3.5
2	2	2010-01816	3005507	Sicherungsklemme f. Si. 6,3x32	Phoenix		-2F1,-2F5
				Fuse terminal f.fuse 6,3x32			
3	2	2010-01364	19356-4A	Sicherungseinsatz 6x32 4A tr.	Wickmann		-2F1, -2F5
				Fuse 6x32 4A time-lag			
4	2		3RV1011-0GA20	Leistungsschalter 3RV1011-0GA20	Siemens		-2Q1
				Circuitsbreaker 3RV1011-0GA20			
5	3	2010-01841	8WA1822-7EF76	Sicherungseinsatz 5x20mm 1A	Siemens		-2F3,-2F5, -2F6
				Fuse 5x20mm 1A			
2	3	2010-01399	3RT1024-3AL20-1AA0	Schütz Bgr.S0 3P. 5,5kW,steh. Einb. Cage-Cl 230V 50/60Hz	Siemens	SMC 7 - 14	-3K1 bis -3K3
				Contactor type S0 3P. 5,5kW, upright m.Cage-Cl			
3	2	2010-01401	3RT1026-3AL20-1AA0	Schütz Bgr.S0 3P. 11kW,steh. Einb. Cage-Cl 230V 50/60Hz	Siemens	SMC 18 - 22	-3K1, -3K3
				Contactor type S0 3P. 11kW, upright m. Cage-Cl			
4	1	2010-01399	3RT1024-3AL20-1AA0	Schütz Bgr.S0 3P. 5,5kW,steh. Einb. Cage-Cl 230V 50/60Hz	Siemens	SMC 18 - 22	-3K2
				Contactor type S0 3P. 5,5kW,upright m. Cage-Cl			
6	2	2010-01402	3RT1034-3AL20-1AA0	Schütz Bgr.S2 3P. 15kW,steh. Einb. Cage-Cl 230V 50/60Hz	Siemens	SMC 36	-3K1, -3K3
				Contactor type S2 3P. 15kW, upright m. Cage-Cl			
6	1	2010-01401	3RT1026-3AL20-1AA0	Schütz Bgr.S0 3P. 11kW,steh. Einb. Cage-Cl 230V 50/60Hz	Siemens	SMC 26 - 36	-3K2
				Contactor type S0 3P. 11kW, upright m. Cage-Cl			
6							
6							
6							

				Date	14.11.96
	Klemmen	970925	GKL	Bearb.	GKL
		970408	GKL	Gepr.	GKL
Zust.	Änderung	Datum	Name	Norm	

Projekt: SMC 7 - 44

Urspr. | Ers.f | Ers.d

STROMME
Marine Compressors

Material List

137.00221-
Stromme-00

Page 1
of 4 pages

Material List

No.	Quant.	Part No.	Art.No.	Name	Maker		Ref.
6	2	2010-01407	3RT1035-3AL20-1AA0	Schütz Bgr.S2 3P. 18,5kW,steh. Einb. Cage-Cl 230V 50/60Hz Contactor type S2 3P. 18,5kW,upright m.Cage-Cl	Siemens	SMC 44	-3K1, -3K3
6	1	2010-01402	3RT1034-3AL20-1AA0	Schütz Bgr.S2 3P. 15kW,steh. Einb. Cage-Cl 230V 50/60Hz Contactor type S2 3P. 15kW,upright m.Cage-Cl	Siemens	SMC 44	-3K2
7	3	2010-01400	3RH1921-2DA11	Hilfsschalterblock 1S 1O für Schütz S0-S3 Auxiliary switch block 1NO 1NC f.cont. S0-S3	Siemens		-3K1 bis -3K3
8	1	2010-01394	3TG1010-0AL2	Kleinschütz 4-polig 50/60Hz Relay 4- pol. 50/60Hz	Siemens	Option	-3K4
9	1	2010-01818		Einschraubheizkörper 440V, 600W mit KTY Heater screw-in type 440V, 600W with KTY	Helios	Option	-2R1
10	1	2010-01668	90.820-F06 4Mf	Temperatursensor KTY Temperature sensor KTY	Jumo		-4R2
11	1	2010-01675	EDI16	Druckmeßumformer 4-20mA 0-16bar Pressur sensor 4-20mA 0-16bar	Condor		-4U1
12	1	2010-01615	3SB1203-1AC01	Pilz-Drucktaster 40mm, rast, 1Ö, rt, 22mm Emerg. stop button 40mm, latch., 1NC, red, 22mm	Siemens		-2S1
13			3SB1400-0C	Schaltelement 1Ö Switch element 1NC	Siemens		-2S1
14	1		4AM3495-0BM88-0C	Steuertrafo Prim.440V Sek.230/18/10V 160VA Control transformer prim.440V sec.230/18/10V 160VA	Siemens		-2T1
15	3	2010-01828	8WA2011-1DH20	Reihenklemme 6mm? Terminal 6mm?	Siemens	SMC 7 - 14	-X1
15	3	2010-07075	8WA1204	Reihenklemme 16mm? Terminal 16mm?	Siemens	SMC 18 - 22	-X1

				Date	14.11.96	Projekt: SMC 7 - 44	STROMME Marine Compressors	Material List	
	Klemmen	970925	GKL	Bearb.	GKL				137.00221- Stromme-00
		970408	GKL	Gepr.	GKL				ge 2 4 pages
Zust.	Änd.	Datum	Name	Norm		Urspr.	Ers.d		

Material List

No.	Quant.	Part No.	Art.No.	Name	Maker		Ref.
24	1	2010-01534	MSTB2,5/3-ST	Combicon Buchse 3-pol.	Phönix		-A3.5
				Combicon Jacket 3-pol.			
25	1	2010-01535	MSTB2,5/7-ST	Combicon Buchse 7-pol.	Phönix		-A3.5
				Combicon Jacket 7-pol.			
26							
27	1	2010-07081		Tragschiene TS35 530mm lang		SMC 7 - 14	
				Mounting rail TS35 530mm long			
27	1	2010-07081		Tragschiene TS35, 719mm lang			
				Mounting rail TS35 719mm long			
28	1	2010-07082	00232	RS-485 Schnittstellen-Modul		Option Plant Contr. Master/Slave	
				RS-485 Interface modul			

				Date	14.11.96
	Klemmen	970925	GKL	Bearb.	GKL
		970408	GKL	Gepr.	GKL
Zust.	Ände g	Datum	Name	Norm	

Projekt: SMC 7 - 44

Urspr.

STROMME
Marine Compressors

Ers.d

Material List

137.00221-
Stromme-00

ge 4
4 pages

Material List

No.	Quant.	Part No.	Art.No.	Name	Maker		Ref.
14	3	2010-07069	8WA1205	Universalklemme 35mm? Terminal 35mm?	Siemens	SMC 26 - 44	-X1
15	2	2010-07076	8WA2011-1PH20	PE-Klemme 6mm? PE-terminal 6mm?	Siemens	SMC 7 - 14	-X1
15	2	2010-07077	8WA1011-1PKH00	PE-Klemme 16mm? PE-terminal 16mm?	Siemens	SMC 18 - 26	-X1
15	1	2010-07078	8WA1011-1PM00	PE-Klemme 35mm? PE-terminal 35mm?	Siemens	SMC 26 - 44	-X1
16	2	2010-01839	8WA2011-1PG20	Borne PE 4mm? Borne PE 4mm?	Siemens		-X1
17	1	2010-07079	8WA2011-1PG30	PE-Klemme 4mm? mit 3 Anschlüssen PE-terminal 4mm?, 3 connections	Siemens		-X1
18	8	2010-07080	8WA2011-2DG20	Doppelstockklemme 4mm? Two-tier terminal 4mm?	Siemens		-X1
19	1	2010-01597	1229	Magnetventil, Lastventil Solenoid valve, load valve	Bürkert		-3Y1
20	1	2010-01530	MC1,5/4-ST/3,81	Mini-Combicon Buchse 4-pol. Mini-combicon jacket 4-pol.	Phönix		-A3.5
21	1	2010-01531	MC1,5/5-ST/3,81	Mini-Combicon Buchse 5-pol. Mini-combicon jacket 5-pol.	Phönix		-A3.5
22	1	2010-01532	MC1,5/6-ST/3,81	Mini-Combicon Buchse 6-pol. Mini-combicon jacket 6-pol.	Phönix		-A3.5
23	1	2010-01533	MC1,5/10-ST/3,81	Mini-Combicon Buchse 10-pol. Mini-combicon jacket 10-pol.	Phönix		-A3.5

				Date	14.11.96	Projekt: SMC 7 - 44	STROMME Marine Compressors	Material List	137.00221- Stromme-00	Page 3 of 4 pages
	Klemmen	970925	GKL	Bearb.	GKL					
		970408	GKL	Gepr.	GKL					
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers.f	Ers.d		

Konformitätserklärung
Declaration of conformity
Déclaration de conformité
Dichiarazione di Conformità

ALUP-Kompressoren GmbH
Adolf-Ehmann-Str. 2
73257 Köngen
Deutschland

Wir erklären hiermit, dass der Druckluftkompressor
We declare herewith, that the air compressor
Nous déclarons par la présente que le compresseur d'air comprimé
Con la presente dichiariamo che il compressore

Nr. / No. / N°. / N.:

Typ / Type / Type / Tipo:

Jahr / Year / Année / Anno:

der Maschinenrichtlinie 98/37, sowie den Richtlinien 2006/95/EG, 89/336 entsprechen
corresponds to the machine guideline 98/37, and guideline 2006/95/EG, 89/336
correspond à la directive relative aux machines 98/37 CEE, et directive 2006/95/EG, 89/336
corrisponde alle norme per le macchine 98/37 CEE, e norme 2006/95/EG, 89/336

Angewendete harmonisierte Normen:
Applied harmonized standards:
Normes harmonisées appliquées:
Norme armonizzate applicate

EN 292-2
EN 1012
EN 60204
EN 50081-1
EN 50082

i. V. Wiegers
Wolfgang Wiegers

ppa.
Thomas Plach

Industrie Service

BESCHEINIGUNG
über die
Einstellung von 150 bauteilgeprüften Sicherheitsventil(en)

Auf Antrag der Firma **J. Lorch Ges. & Co. GmbH, 70751 LE-Echterdingen** wurde bei 150 Sicherheitsventil(en) die Einstellung des Ansprechdruckes geprüft.

Die eingestellten Ventile tragen folgendes Bauartkennzeichen:

TÜV-SV-03-917-10-D/G-0,41

Hersteller: J. Lorch Ges. & Co. GmbH
70751 LE-Echterdingen

Bauart: Normal - Sicherheitsventil
federbelastet

Abblaseleistung gemäß Datenbl.: **377** Nm³/h

Einstellüberdruck: 15 bar

Prüfmedium: Druckluft

Größe: 1/2“

Lichter Sitzdurchmesser: DN 10

Sicherung gegen Verstellen: Eingepresste Abdeckscheibe
Typbezeichnung: 2124 lfd. Nr.: 02/07-04824 bis 04973

Verwendungsbereich: Abblasen von ungiftigen Gasen und Dämpfen
aus Druckbehältern bis 180 °C

Kennzeichnung : CE 0036

Sechskant ist mit dem Stempel (TÜ SW) versehen.

LE-Echterdingen, den 13.02.2007

TÜV SÜD Industrie Service GmbH
Der Sachverständige

Reinhold Nüssle

BWB Behälter-Werk Burgau Gm

D-89331 Burgau / Schwaben • Telefon 08222 / 4001-0 • Telefax 08222 / 4001-89

Typ/Type/Tipo: 302789 228.00877

Betriebsanleitung D

Verwendungszweck:

Druckbehälter für Kompressoren

Medium: Luft/Öl

Korrosionzuschlag: c = 1,0 mm

Der Druckbehälter darf nur im Rahmen des oben angegebenen Verwendungs-zwecks und der technischen Daten eingesetzt werden. Eine anderweitige Verwendung ist aus Sicherheitsgründen nicht zulässig. Die Konstruktion des Druckbehälters erfolgte nach Richtlinie 87/404 EWG und wurde als Einzel-komponente ohne sicherheitstechnische Ausrüstung für den angeführten Einsatzbereich gefertigt. Die Auslegung erfolgte für vorwiegend ruhende Innendruckbeanspruchung. Der Behälter ist dauerfest bei einem Druck-schwankungsbereich von delta p<=20% des max. Betriebsdruckes PS.
Vor der Inbetriebnahme muß der Behälter mit den erforderlichen Sicherheitseinrichtungen , wie Druckmanometer, Sicherheitseinrichtungen gegen Drucküberschreitung usw. versehen werden. Diese Teile gehören nicht zu unserem Lieferumfang.
An den drucktragenden Wandungen des Behälters dürfen keine Schweißarbeiten oder Wärmebehandlungen durchgeführt werden. Es ist sicherzustellen, daß der Innendruck den in der Behälterkennzeichnung angegebenen Betriebsdruck PS „nicht betriebsmäßig übersteigt". Kurzzeitig darf dieser Druck jedoch bis zu 10% überschritten werden. Eine für den Druckbehälter schädliche Schwingbeanspruchung , sowie Korrosion am Behälter sind durch geeignete Maßnahmen zu verhindern. Die Montage bzw. Aufstellung des Druckbehälters hat derart zu geschehen, daß die Gebrauchssicherheit des Behälters gewährleistet bleibt (z.B. keine starre Verbindung mit Fußboden oder Maschinenrahmen ohne Schwingungsdämpfer). Die vom Ausrüster zu erstellende Betriebsanweisung muß unter Berücksichtigung der Ausrüstungsteile enthalten:
a) Anleitung zur Entleerung des Kondensats,
b) Angaben zur Wartung, um die Gebrauchssicherheit zu gewährleisten.
Der Ausrüster hat ferner festzulegen, ob der betriebsfertig ausgerüstete Druckbehälter einer Abnahmeprüfung vor Inbetriebnahme zu unterziehen ist. Der Ausrüster/Betreiber hat die im jeweiligen Land gültigen Gesetze und Verordnungen über den Betrieb der Druckbehälter zu beachten.
Bemerkung:

TRB 801 Nr. 15 ist zu beachten. Stutzen und anschließende Rohrleitungen sind so abzustützen, daß sich keine schädlichen Beanspruchungen auf die Behälterwand ergeben.

Markenzeichen des Herstellers:
Mark of the Manufacturer:
Marchio del fabbricante:
Marca del fabricante:
Merk van de fabrikant:
Marca do fabrikante:
Produzenten mærke:

BWB

Typ/Type/Tipo: 302789

228.00877

PS 15 bar V 22 L CE 0036

Tmax 120 °C Tmin -10 °C

Seriennummer und Herstelljahr siehe Behälterkennzeichnung
Numero de série et anne de fabrication (voir le plaque)
Serial number and year of production (look at the nameplate)
Numero di serie e anno della produzione (vedi targhetta)
Número de serie et año de fabricación (placa de identificación)
Serienummer en fabrikagejaar (zie plaatjes)
Ver n° de identificaçãoe ano de fabricação (vide placa identificativa)
Vedr.seriennummeret og fabrikationsår (se behholderens identificación)

Lastwechsel nach AD-S2 Anhang 4
Druckschwankungsbreite 10 bar: <3 000 000 LW
Druckschwankungsbreite 12 bar: <1 650 000 LW
Druckschwankungsbreite 15 bar: < 850 000 LW

Notice d´instructions F

Dápplication:

Appareils à pression pour compresseur

Medium: Air/Huile

Surepaisseur de corrosion: c = 1,0 mm

Le réservoir ne pourra être utilisé que dans la cadre du champ d'application désigné ci-dessus et de ses caractéristiques techniques. Toute autre utilisation est interdite pour des raisons de sécurité. Le réservoir á pression a été fabriqué selon la directive EEC 87/404 comme composant individuel sans organes de sécurité pour le champ d'application indiqué ci-dessus. Le calcul et la conception ont été effectués principalement pour l'impact par pression intérieure constante.Le réservoir à pression est solide à une zone de fluctation delta p <=20% de la pression de service „PS".
Avant la mise en service, le réservoir doit être doté des dispositifs de sécurité nécessaires comme d'un manomètre de pression, d'un dispositif contre l'excès de pression, de la soupape de sécurité etc. Ces dispositifs ne sont pas compris dans notre livraison. Il est interdit de réaliser des opérations de soudage ou des traitements thermiques aux parois sous pression. Il faut assurer que, pendant le foncionnement prévu, la pression intérieure ne dépassera pas, de facon permanente, la pression maximale de service PS; une surpression momentanée dans la limite de 10% au maximum, est cependant autorisée. Il faudra éviter, par des mesures appropriées, la corrosion du réservoir et les vibrations pouvant être nuisibles à l'appareil. Pendant le montage et la mise en place du réservoir à pression il faut veiller à ce que la sûreté d'emploi soit garantie (par exemple pas d'assemblage immobile au plancher ou au bâti de la machine, sans amortisseur de vibrations. Les instructions de service rédigées par le fournisseur doivent comprendre en tenant compte des effets d'équipment:
a) instructions pour le vidage du condensé
b) des informations concernant l'entretien du réservoir à pression pour garantir la sûreté d'emploi. Le fournisseur doit également déterminer s'il faut présenter le réservoir, équipé et en ordre de march, à un organisme agrée pour un contrôle de réception avant la mise en marche. Le fournisseur /opérateur est responsable d'observer les lois et décrets concernant le service du reservoir à pression valables dans le pays respective.
Remarque:

Les piquages et les conduits de tuyaux se raccordants doivent être soutenus de manière que des changes nuisibles ne se produisaient aux viroles du réservoir.

07.05.03

BWB Behälter-Werk Burgau Gm

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Typ/Type/Tipo: 302789 228.00877

Operating Instructions GB

Application:
Pressure vessel for compressors

Medium: Air / Oil

Corrosion allowance: c = 1,0 mm

The pressure vessel is only to be used for the application specified above in accordance with the technical specifications. Safety reasons prohibit any other applications.
The pressure vessel has been manufactured according to the EEC regulation 87/404 as a single component without safety equipment for the above mentioned application. The layout was mainly effected for a permanent load by internal pressure.
The pressure vessel is permanent firm at a range of fluctuation delta p<=20% of the maximum work pressure „PS".
Before commissioning, the vessel is to be provided with the required safety equipment such as manometer, overpressure control devices, and safety valve, etc. These components are not part of our supply. No welding or heat treatment of any kind is permitted to those vessel walls which are exposed to pressure.
It must be ensured that the internal pressure will not permanently exceed the maximum working pressure PS stipulated on the vessel nameplate; however, it may momentarily do so by up to 10%.
Suitable measures are to be taken to prevent both vibrating stress and corrosion.
The pressure vessel is to be installed in a way that guarantees its safety in use (e.g. no fixed connection with floor or frame of the machine, without damped oscillation).
Taking into consideration all components of the equipment , the instructions, issued by the supplier of the pressure vessel, must include:
a) instructions for discharging the condensate
b) information referring to the maintenance of the pressure vessel in order to guarantee is safety in use.
The supplier must also decide whether the pressure vessel, once equipped and ready for operation, is to be subjected to an accepance test before operation.
The supplier/operator is obliged to observe the laws and decrees regarding the operation of the pressure vessel valid in the respective country.
Remarks:

Sockets and connecting pipes must be supported in a way that harmful loads are exercised on the shells of the pressure vessel.

Istruzioni per l'uso I

Impiego:
Serbatoio a pressione per compressori

Mezzo: aria / olio

Tolleranca per corrosione: c = 1,0 mm

Il serbatoio a pressione può essere utilizzato solo nell'ambito del sopraccitato campo d'applicazione e delle sue caratteristiche tecniche. Per motivi di sicurezza ogni altra utilizzazione è vietata. Il serbatoio a pressione è stato costruito secondo la direttiva CEE 87/404; esso è stato realizzato come componente singolo, senza dispositivi tecnici di sicurezza, per il sopraccitato campo d'impiego. Il calcolo di progettazione è fatto basandosi su una sollecitazione da pressione interna essenzialmente stabile. Il serbatoio è resistente ad un'oscillazione della pressione del delta p <= 20% di pressione massima di lavoro PS. Il serbatoio prima dell'installazione dev'essere dotato degli adeguati dispositivi di sicurezza quale manometro, dispositivi di sicurezza contro l'eccesso di pressione ecc. Questi accessori non fanno parte del volume della nostra fornitura. Sulle pareti del serbatoio soggette a pressione non si devono eseguire lavori di saldatura o trattamenti termici. Si deve verificare che la pressione interna „non superi abitualmente" la pressione di lavoro PS indicata sul serbatoio. È tollerato un eccesso transitorio del 10%. L'oscillazione e la corrosione danneggiano il serbatoio e devono essere eliminate applicando le misure opportune.
Il montaggio e/o l'installazione del serbatoio a pressione devono avvenire il modo tale da garantire la sicurezza del serbatoio durante il funzionamento (per esempio: non effetuare collegamenti rigidi con il pavimento o con il telaio di un macchinario senza ammortizzatore d'oscillazione). Il fornitore produce le instruzioni per il funzionamento che, riguardo alle parti d'equipaggiamento, devono contenere:
a) istruzioni per lo svuotamento del condensato
b) Indicazioni sulla manutenzione per garantire la sicurezza d'impiego.
Inoltre, il fornitore stabilisce se il serbatoio a pressione attrezzato per il funzionamento dev'essere collaudato prima della messa in funzione. Il fornitore /utente deve osservare le leggi e le prescrizioni vigenti nel paese d'installazione riguardo al funzionamento dei serbatoi a pressione.
Nota:

Il bocchettone e le seguenti tabature devone essere sostenuti in modo da evitare sollecitazioni nocive sulla parete del contenitore.

Instrucciones de servicio E

Aplicación:
Depósitos a presión para compresores

Fluido: aire / olie

Fundamente de corrosión: c = 1,0 mm

El recipiente de presión sólo se debe emplear dentro del marco de las aplicaciones y los datos técnicos indicados. Otra aplicación no es admisible por razones de seguridad. La construcción del recipiente de presión se ha realizado según la directiva 87/404 CEE y se ha fabricado como componente aislado, sin dispositivos técnicos de seguridad, para el campo de aplicación relacionado. El dimensionamiento se realizó preferentemente para una solicitación de presión interior en reposo. El recipiente resiste un servicio continuo en una gama de variaciones de presión de delta p <= 20% de la presión de servicio máxima PS. Antes de la puesta en marcha se debe proveer el recipiente con los dispositivos de seguridad necasarios, tales como manómetro, dispositivo de seguridad contra sobrepresiones, etc. Estas piezas no forman parte de nuestro volumen de suministro. En las paredes que soportan la presión del recipiente no se debe realizar ningún trabajo de soldadura o someterse a un tratamiento térmico. Se asegurará que la presión interior „no sobrepase con el funcionamiento previsto" la presión de servicio PS indicada en las características del recipiente.
Durante breve tiempo puede sobrepasarse esta presión en un 10 %. Se evitarán solicitaciones de vibraciones nocivas para el recipiente de presión así como corrosión del recipiente mediante medidas apropiadas. El montaje o instalación del recipiente se realizará de tal modo que permanezca garantizada la seguridad de uso del recipiente (por ejemplo, ninguna unión rígida con el suelo o bastidor de máquinas sin amortiguador de vibraciones). Las instrucciones de montaje a elaborar por el instalador deben contener, teniendo en cuenta las piezas de equipamiento, lo siguiente:
a) instrucciones para el vaciado del condensado,
b) indicaciones para el mantenimiento para garantizar la seguridad de uso.
El instalador esteblecerá además si el recipiente de presión equipado listo para el funcionamiento, se debe someter a una prueba de recepción antes de la puesta en marcha. El instalador/cliente debe tener en cuenta la legislación y reglamentación vigente en cada país sobre el funcionamiento de los recipientes a presión.
Observaciones:

Hay que soportar las tubuladuras y las tuberlas conectadas de tal manera que no resulten cargas daninas a la pared de la caja.

BWB Behälter-Werk Burgau GmbH
89331 Burgau / Schwaben
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Typ/Type/Tipo: **302789 228.00877**
Baujahr:
Herstell-Nr.: ____________________

KONFORMITÄTSERKLÄRUNG - DECLARATION OF CONFORMITY
DECLARATION DE CONFORMITE - DICHIARAZIONE DI CONFORMITA
DECLARACION DE CONFORMIDAD - VERKLARING VAN OVEREENSTEMMING
DECLARACÃO DE CONFERMIDADE - OVERENSSTEMMELSES-ATTEST

Wir,/ We,/ Nous,/ Noi,/ Nostros,/ Wij,/ Nós,/ VI,
BWB Behälter-Werk Burgau GmbH, Siemensstraße 8, D 89331 Burgau -

D -erklären in alleiniger Verantwortung, daß das Produkt Druckbehälter nach Zeichnung (*), Typ wie oben und Seriennummer siehe Behälterkennzeichnung, auf das sich diese Erklärung bezieht, mit den folgenden Normen, normativen Dokumenten übereinstimmt: - Konformitätserklärung gem. Art. (**) der Richtlinie 87/404 EWG in Verbindung mit EG-Baumusterprüfung gem. Art. 10 mit der Baumuster-registriernummer (***) -

GB -declare under our own responsability, that the product pressure vessel, according drawing-number (*), type as above mentioned and serial-number as shown as pressure vessels marking, to which this declaration relates is in conformity with the following standards and normative documents: - declaration of conformity art.(**) according to directive 87/404 EEC in connection with EC-Type approval acc. art. 10 with the type-approval-N°. (***) -

F - declarons sous notre seule responsabilite, que le reservoir a pression de plan-numéro (*), type comme cidessous et numero de serie voir le marquage du reservoir, auquel se réfère cette declaration, est conforme aux normes ou autres documents normatives suivant: - Déclaration de Conformité Art. (**) de Directive 87/404 CEE en accord avec la Vérification módele Type CE, Art. 10 avec le numéro d'examination de type (***) -

I - dichiariamo, sotto nostra esclusiva responsabilità, che il prodotto serbatoio a pressione, secondo il disegno(*), tipo e numero di serie vedi targhetta, cui si riferisce la presente dichiarazione, è in conformità alle norme o ai documenti normativi seguenti: - Dichiarazione di conformità, art. (**) della direttiva 87/404 CEE in connessione con l'omologazione tipo CE, art. 10 con il numero d'omologazione (***) -

E - declaramos bajo nuestra sola responsabilidad, que el recipiente de presiòn según, dibujo (*), tipo y numero de serie ivease la caracteristica de deposito, al que se refiere la presenta declaracion, es conforme a la norma y otros documentos siquientes: - Declaraciòn de Conformidad, Art. (**) de la Directiva 87/404 CEE de acuerdo con la Verificacion CE de tipo Art. 10 (***) -

NL - verklaren met volledige aansprakelijkheid, dat het produkt drukketel volgens tekening (*),. van bovengenoemd type en met serienummer waarop deze verklaring betrekking heeft, zie identificatieteken, voldoet aan de volgende normen, normatieve documenten. - Verklaring van Overeenstemming volgens art. (**) van de EEG-richtlijn EG 87/404 in combinatie met EG-typecontrole volgens art. 10 met het typecontrolemerkteken (***) -

P -declaramos em própria responsabilidade, que o produto "depósito a pressão" segundo desenho (*),tipo como acima mencionado e número de série constante da chapa de marcacão do depósito, a que esta declaracão se refere, corresponde às seguintes normas e documentos reguladores: - Declaracão de conformidade conforme art.(**) da directiva CE 87/404 , em combinacão com a verificacão de modelo da CE segundo o art. 10, com o distintivo de controlo do modelo (***) -

DK -erklærer på eget ansvar, at produktet trykbeholder i hendold til tegning (*), type som ovenfor og serienummer (se den beholdermarkering, som denne attest refererer til) stemmer overens med fölgende standarder, normative dokumenter. - Overensstemmelses-attest i hht. art. (**) i direktivet EEC 87/404 sammenholdt med EEC-typeafprövningen i hht. art. 10 med typeafprøvningsmarkeringen (***)-

(*) = 302 765 **Rev.** A1 (**) = **Art** 12 (***) = **TBy** 101/14-1

sowie AD-2000

Burgau, den 07.05.03

BWB BEHÄLTER-WERK BURGAU GMBH

RL 87/404